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Structural Cross Sections and Subsurface Maps of the Atoka Formation in the Northern Arkoma Basin, Western and Northwestern Arkansas

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Structural Cross Sections and Subsurface Maps of the Atoka Formation in the Northern Arkoma Basin, Western and Northwestern Arkansas

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by

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This thesis is approved for recommendation to the Graduate Council.

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ABSTRACT

The Arkoma Basin is one of several peripheral foreland basins situated on the front of the Ouachita orogenic fold and thrust belt. The transition from the foredeep to the Ozark Plateaus is a short one in terms of latitude. The Atoka Formation in Arkansas comprises the bulk of the sediments in the Arkoma Basin. Three divisions of the Atoka Formation have been informally assigned as the Upper, Middle, and Lower based on differences in sedimentary response to tectonic processes that occurred during the formation and subsidence of the Arkoma Basin. In the Arkansas portion of the Arkoma Basin, the lower Atoka marks the onset of tectonic subsidence in between the Mulberry and the Cass Fault systems and displays a maximum of almost 1,000 feet of thickening in the study area. The middle Atoka in the same area gains a maximum of 4,000 feet of sediment. The upper Atoka achieves a maximum thickness of 1,800 feet. Entrapment of hydrocarbons within the Atoka Formation in the Arkoma Basin has led many oil and gas companies to penetrate and log the formation with electric, gamma ray and other mechanical logs while exploring for natural gas. This study uses these raster logs to provide a variety of maps and cross sections that illustrate the coastal systems of the lower and upper Atoka Formation and aid in the interpretation of the sedimentary response of the three Atoka divisions with respect to structural timing and sedimentology. With the subsurface maps and cross sections, a more synthesized version of the Atoka Formation in the northern Arkoma Basin of western version is produced.

ACKNOWLEDGEMENTS

Many thanks to Doy L. Zachry, Ph.D. for his longsuffering leadership during my time at the University of Arkansas. Along with the inimitable Walter Manger, Ph.D., the students that benefited from their learned lectures, wit, enthusiasm and field trips are better equipped than most to tackle the world of geology with a will. Also, thanks to Matt Covington, Ph.D. for the thought-provoking coursework as well as the editing of this thesis. Thank you to Greg Dumond, Ph.D. for the discussions and encouragement as well. I would venture so far as to say that I had the best committee in the world.

My mother, Jeanie Sharp Nance, instilled a sense of creativity, wonderment and passion in me at an early age and should be credited for anything good that I do in life. I love you Mom. This thesis is my heart tattoo with "MOM" in the center of it. My father, Rodney Dean Nance, is responsible for providing me with a strong foundation and an environment conducive to learning. The passion, determination and love that he displays is the best example that I can imagine. Thank you both for everything. Thank you to my other family members as well for all of their support and encouragement along this sometimes arduous journey.

To anyone still reading this, especial thanks must always be given to Jesus Christ, for the seemingly undeserved blessings that have been bestowed upon me. We love because he first loved us.

"Some other faculty than the intellect is necessary for the apprehension of reality."-Henri Bergson

CONTENTS

TABLE OF FIGURES

INTRODUCTION

This work focuses on the structure and sedimentology of the Atoka Formation in the northern Arkoma Basin of western Arkansas. As the regional structure of pre-Atoka rocks is reflected by the rocks of the Mississippian Boone Formation (Amini, 1980), there is some additional emphasis on Osagean structure and stratigraphy. The early Mississippian and late Devonian Kinderhookian Chattanooga Shale is also briefly included in this study, because it is the first easily recognizable 'marker bed' down section. From there, the Chesterian, Meremacian, and Morrowan influence on the structure and sedimentology of the Atoka Formation are summarized before describing the Atokan section in the northern Arkoma Basin of western Arkansas through structural cross sections and subsurface maps.

The Arkoma Basin is an elongate basin, with rocks that crop out both in the Boston Mountains and the frontal edge of the Ouachita Mountains. The basin is one of several foreland basins that formed along the periphery of the Ouachita Fold and Thrust Belt in North America (Figure 1). Structurally, the limits of the basin are arbitrary. To the south is the Choctaw thrust fault marking the beginning of the Ouachita Frontal Thrust Belt (Northcutt and Campbell, 1995). To the east, the Mississippian Embayment, a feature resulting from the Reelfoot Rift System, truncates the Arkoma Basin. To the west, the basin extends into Oklahoma where it is terminated by the Broken Bow Uplift and Cherokee Platform. To the north, the down-to-the-south Mulberry fault exerts the most control on the structure of the strata of the Atoka and underlying formations. However there are also the Cass fault and other minor structures north of the Mulberry fault and the timing and sedimentological aspects of this is the further focus of this study (Figure 5).

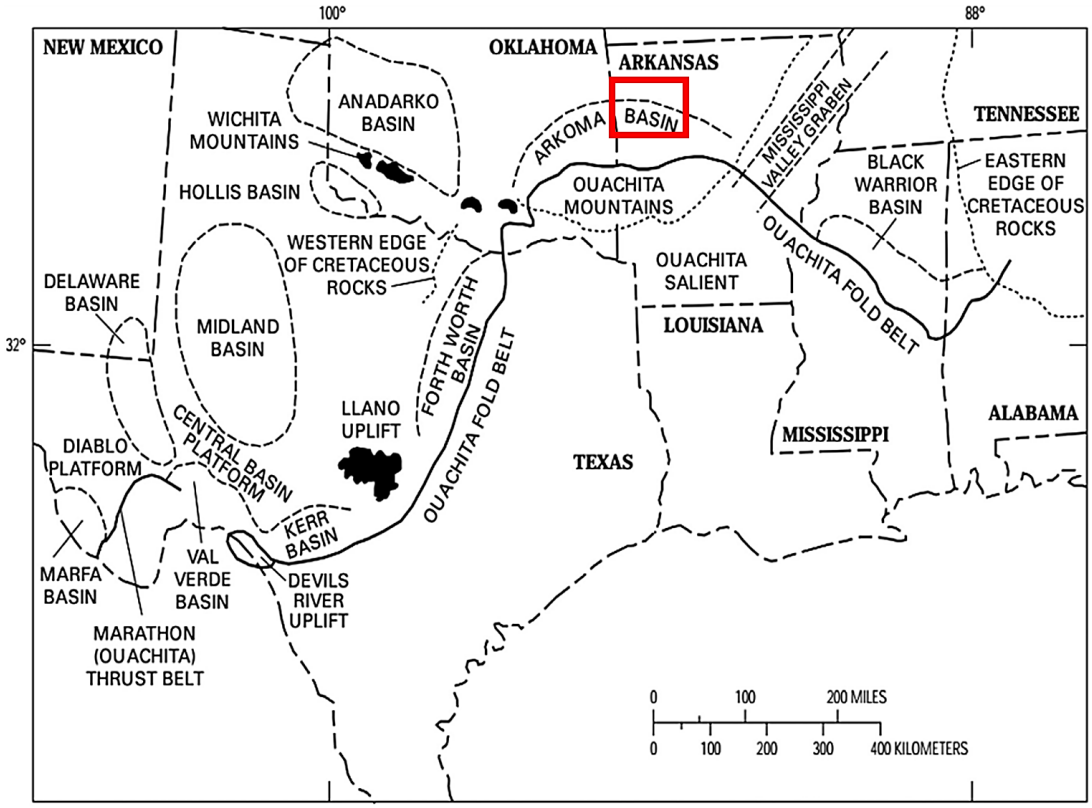

Figure 1-Map of foreland basins located adjacent to the Ouachita fold belt including, from east to west, the Black Warrior, Arkoma, Kerr, and Val Verde Basins. The study area is described by the rectangle. Note the dashed line that delimits the northern extent of the Arkoma Basin (Denison, 1989).

The rocks contained within the Arkoma Basin range in age from the Cambrian to the Pennsylvanian. The Pennsylvanian Atoka Formation is the major emphasis of this work with minor attention given to the Mississippian and Devonian rocks, and older units being outside of the scope of this study.

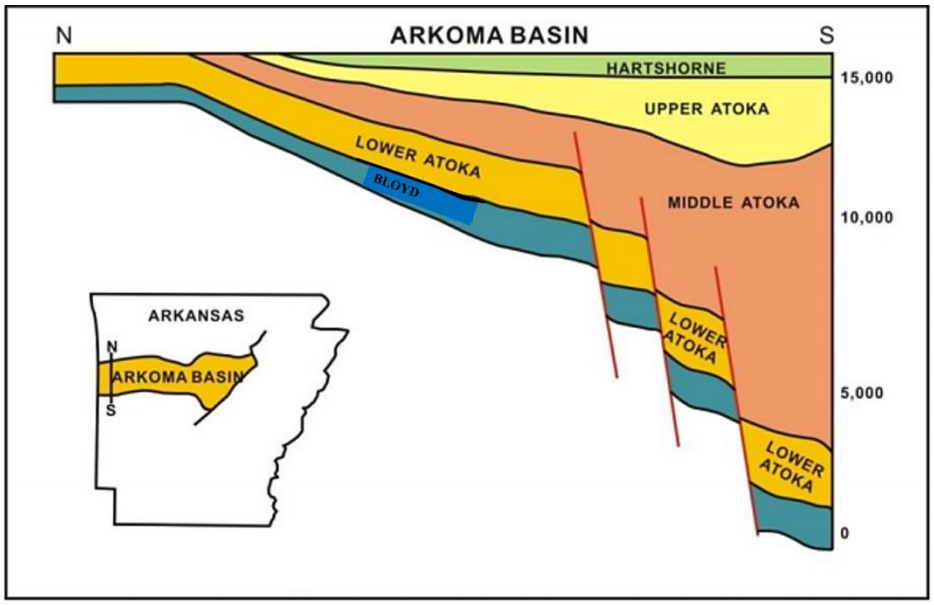

Figure 2-A schematic cross section of the underlying and overlying units into the Arkoma Basin. Note the surface exposure and thickness variations in the Atoka Formation (modified from Zachry, 1984)

The Atoka Formation is underlain by the Morrowan Bloyd Formation in northwestern Arkansas and is overlain by the Desmoinesian Hartshorne sandstone in the Arkoma Basin (Figure 2). The upper Atoka section is exposed in outcrops throughout the central and northern part of the Arkoma Basin in Arkansas and is composed of seven to eight sandstone units separated by intervals of shale that grade upward into intervals of medium-to-thick bedded sandstones that suggest progradational sequences (Zachry, 1983). The lower and middle Atoka sections are distinguished by thickness changes of about 300 to 600 feet of dark shale across growth faults and the occurrence of metamorphic rock fragments in the middle Atoka. The upper Atoka is composed of about four to five sandstones separated by shales that accumulated in coastal systems that prograded southward after faulting had ceased (Zachry, 1983). This study aims to further build on these observations.

The Arkoma Basin is an east to west trending structural low that is about 315 miles (507 km) long and 175 miles (283 km) wide with an area of about 33,800 square miles (87,542 sq. km) bounded by the Ozark uplift to the north and the Ouachita Mountains to the south. The presence of normal faults in the northern part of the basin is evidence of tensional forces, and the presence of thrust faults to the south of compressional forces (Diggs, 1961). The first major orogenic development that influenced the Arkoma Basin occurred at the end of the Devonian (Branan, 1961). Before the beginning of Mississippian time, the area called the trough of the Arkoma Basin was exposed and subsequently subsided. The basin then experienced maximum subsidence during Atokan time based on the great thickness of the Atoka Formation.

The Ouachita Fold Belt is an east-west compressional feature in the southern Midcontinent (Figure 3). The Ouachita fold and thrust belt and the associated foreland basin systems were the result of the collision and subsequent subduction of the Sabine plate beneath the North American Plate during the early Mississippian subsystem and ending in the Middle Pennsylvanian subsystem of the Carboniferous system (Arbenz, 2004). The northern limit of the mountains are marked by thrust faults with the Choctaw fault being northernmost.

The Ozark Plateaus are a broad, asymmetric dome centered in the Precambrian St. Francois Mountains of Missouri (Figure 3). The Ozark Plateaus Province consists of three distinct plateau surfaces: the Salem, the Springfield and the Boston Mountain. The Boston Mountain Plateau is important because it is composed of nearly entirely of the Atoka Formation.

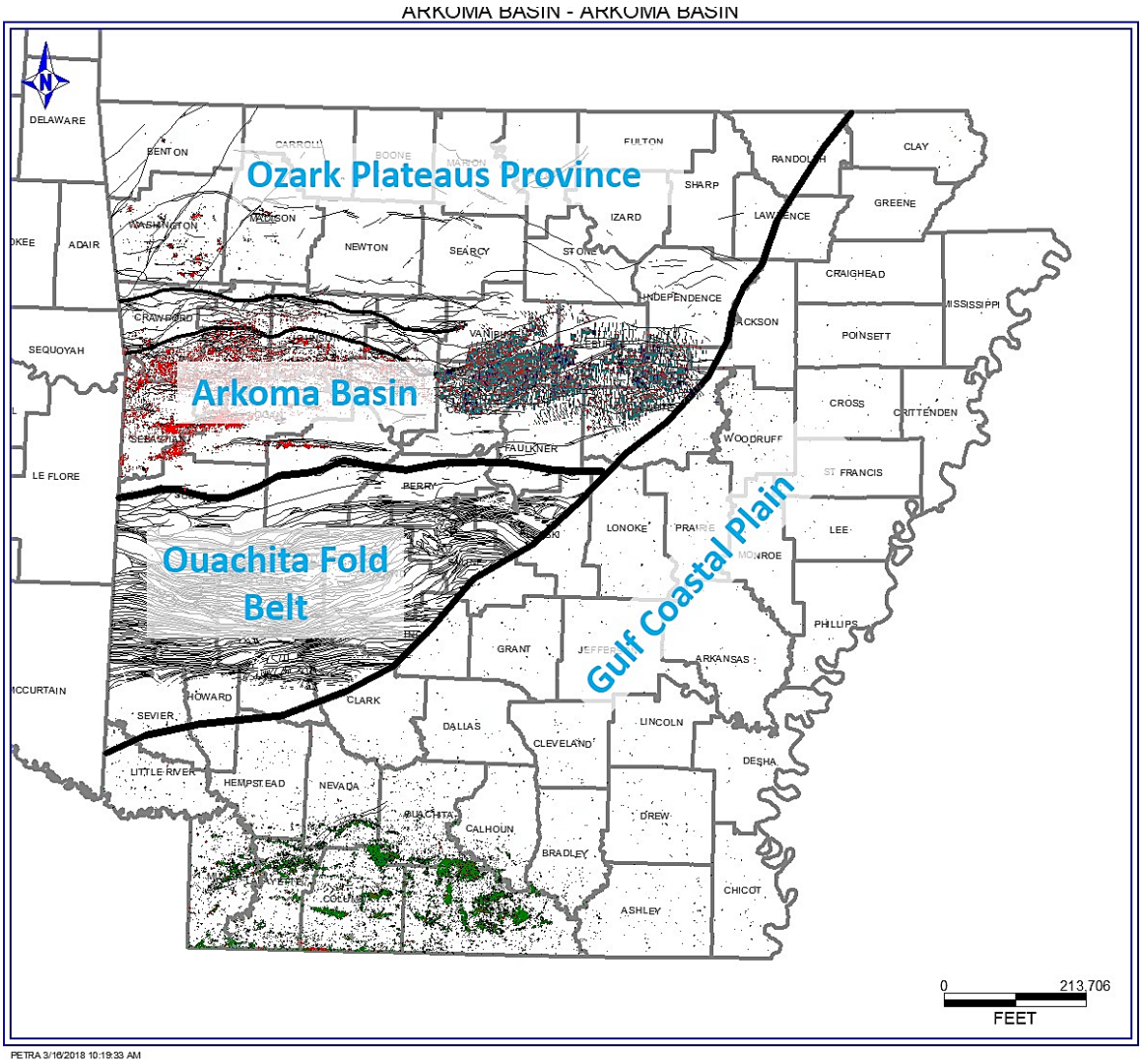

Figure 3-Structural Provinces of Arkansas with all wells drilled as of 2018. Oil wells are colored green and gas wells are colored red. Note the presence of recent horizontal wells in the eastern part of the Arkoma Basin.

The Boston Mountains make up the southern part of the Ozark Plateaus region. Elevations in the Boston Mountains vary greatly, and relief can locally exceed 1,500 feet (Yates and Cullom, 1973). The precise location in the section at the surface is often difficult to determine because of the great thickness and similar rock types of the middle and upper Atoka Formation.

Those studies that have characterized the Atoka Formation as a whole are Houseknecht (1986), who described the evolution from a passive margin to a foreland basin. Zachry and Sutherland (1984) also described the stratigraphy and depositional framework of the Atoka Formation. They concluded that the middle Atoka marked the onset of basin formation in the northern Arkoma Basin. The bulk of the work on the Atoka Formation in western Arkansas has been limited to a few sandstone units of a certain section of the Atoka by University of Arkansas students. Woolsey (2007) described the sequence stratigraphy and depositional dynamics of the Orr-Patterson members. The author of that work concluded that the sub-Orr shale is likely Morrowan in age. Woolsey also concluded that the top of the Morrowan, the Trace Creek Shale, represents a tectonic event in which the basin was lowered, forcing an abrupt transgression.

The middle Atoka is the subject of interest due to the great thickness it attains in the Arkoma Basin. Morgan (2006) established a stratigraphic framework and depositional setting for the Atoka strata between the Cass and the Mulberry fault systems. Morgan identified a barrier island/strand plain depositional environment based on outcrop correlations and sedimentary structures. Houston (2007) established an upper Atoka framework that divides the section into four sands. Houston concluded that the four sands have unique depositional histories. The author of that work determined that the Lower Carpenter sand consists of distributary channels and interdistributary facies.

METHODS

PETRA v3.11.0 software was used for the construction of all cross sections and maps. All of the maps were generated using a grid size of 660'x 660' map units, the distance between interpolated grid node values in both the X and Y direction. The distance of 660' was chosen based on the typical industry well spacing practices for the area (Long, 2005). The contouring style that was used was the 'Highly Connected Features', which is a least squares algorithm (Petra help files). IHS 297 well data and production data were imported and is current as of December 2017. Raster logs provided by Zachry were imported into the software. In total, 2,560 wells are used in at least some portion of the study and are included in Appendix 3. Gamma Ray and Induction logs are the most useful for picking formation tops, although Bulk Density, Neutron, Laterolog, and SP curves are also used.

From these raster logs, a type log (Figure 4) for this study was chosen and correlated across the study area. The boundaries of the lower Atoka are the top of the Sells sandstone and the top of the Patterson sandstone and/or Orr sandstone. The middle Atoka as a whole is from the top of the Lower Carpenter sandstone to the top of the Sells sandstone. The upper Atoka is the Upper Carpenter sandstone to the Lower Carpenter sandstone (Figure 4).

The Middle Atoka was divided into three parts consisting of the upper section of the middle Atoka that includes the base of the Lower Carpenter sandstone to the base of the Self sandstone. The middle section of the middle Atoka is from the base of the Self sandstone to the base of the Bynum sandstone. The lower section of the middle Atoka is defined from the base of the Bynum sandstone to the base of the Sells sandstone (Figure 4). More information of these units is found in the discussion portion of this text.

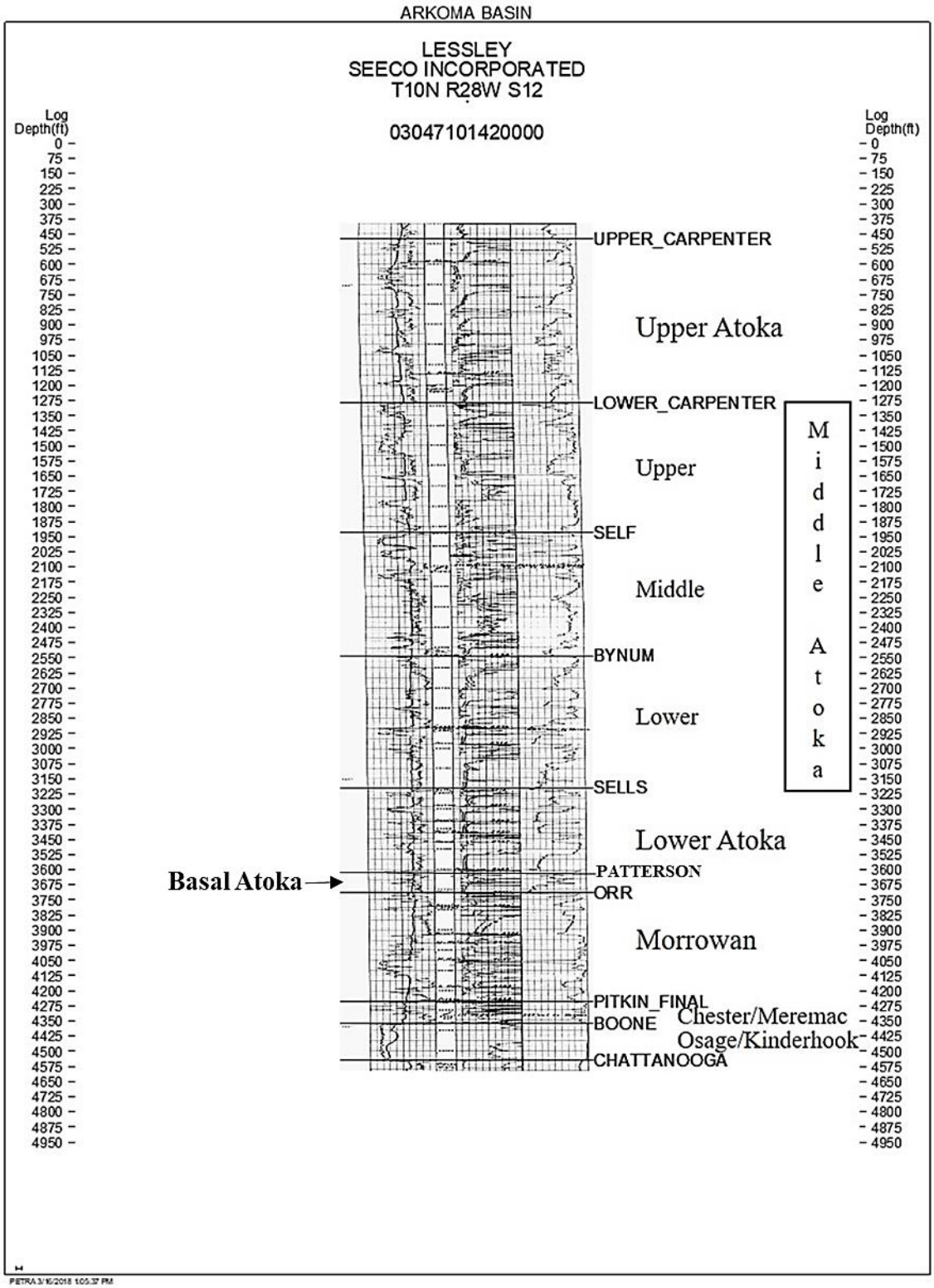

Figure 4-Type log for units, as they appear with gamma ray in the left track and induction in the right track.

After picking tops, six north-to-south and three west-to-east cross sections were constructed. One north to south and one west to east, with discussions, are included in the body of this work, and the rest are in Appendix 1. Additionally, from the picked tops, structure and isopach maps were produced for the intervals described above. Finally, using the structural and isopach maps, maximum curvature and dip angle slope maps were generated using the PETRA software, and are included in Appendix 2. Together, these cross sections and maps more clearly display the structural and stratigraphic nature of the Atoka Formation in the northern Arkoma Basin of Arkansas.

The scope of this study is to determine the structural history of the Atoka Formation in the Arkoma Basin of western Arkansas by way of subsurface maps and structural cross sections. The geographical boundaries of the study area are the Arkansas River to the south, the Oklahoma state line to the west, the Cass and Mulberry fault system to the north, and the eastern edge of Pope County to the east. In total, this area is approximately 4,000 square miles (Figure 5). In some cases, where data are available and particularly for the units underlying the Atoka, the northern extent of the study area is expanded in maps to give a regional sense of the paleotopographic geography. Shape files of surface features such as cities, rivers and faults were used when appropriate.

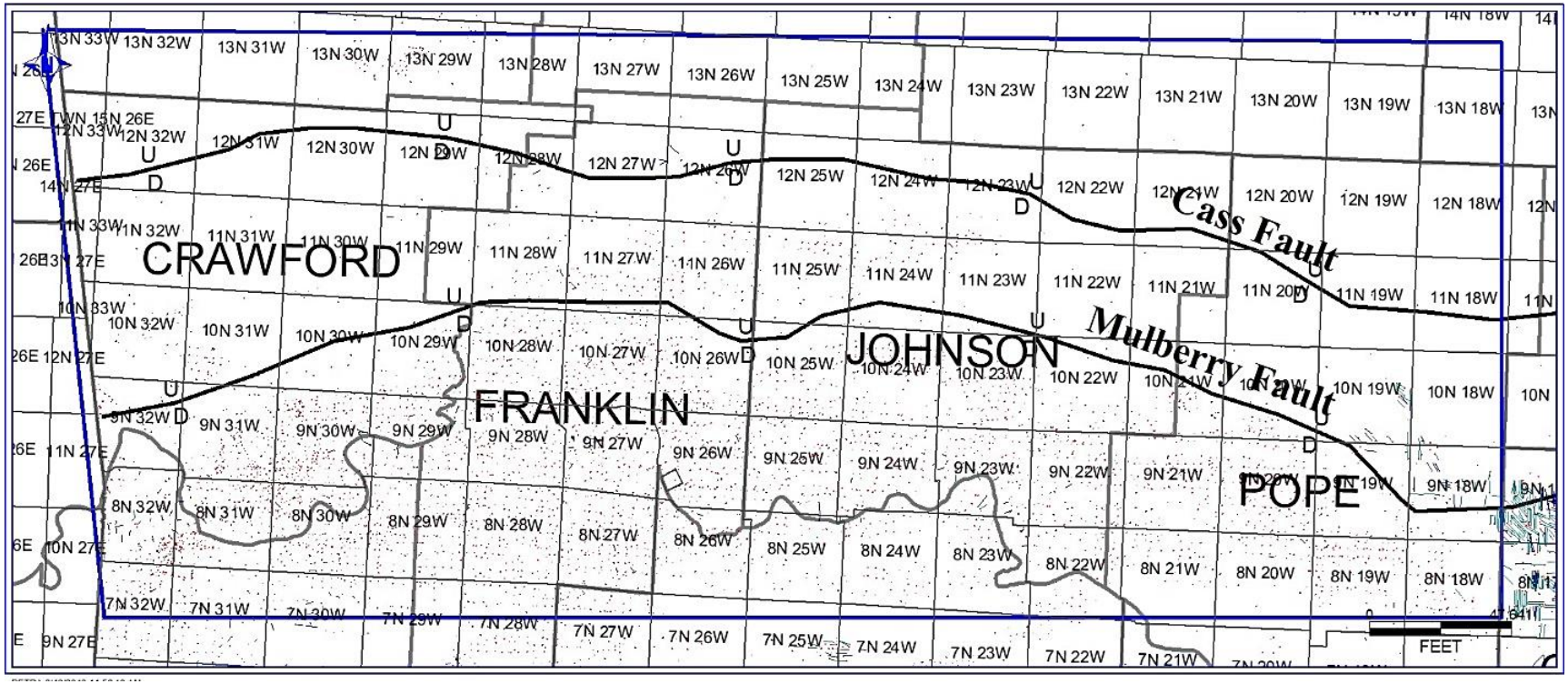

Figure 5-Location of study area in western Arkansas is shown in blue polygon. The Cass and Mulberry fault systems are shown in addition to all the wells in the area. Note the horizontal drilling activity located outside of the study area to the east.

REGIONAL STRUCTURAL CROSS SECTIONS

Figure 6 shows the geographical location of the cross sections constructed for this study. A-A' and Z-Z' are discussed below, with the remaining cross sections and discussions located in Appendix 1.

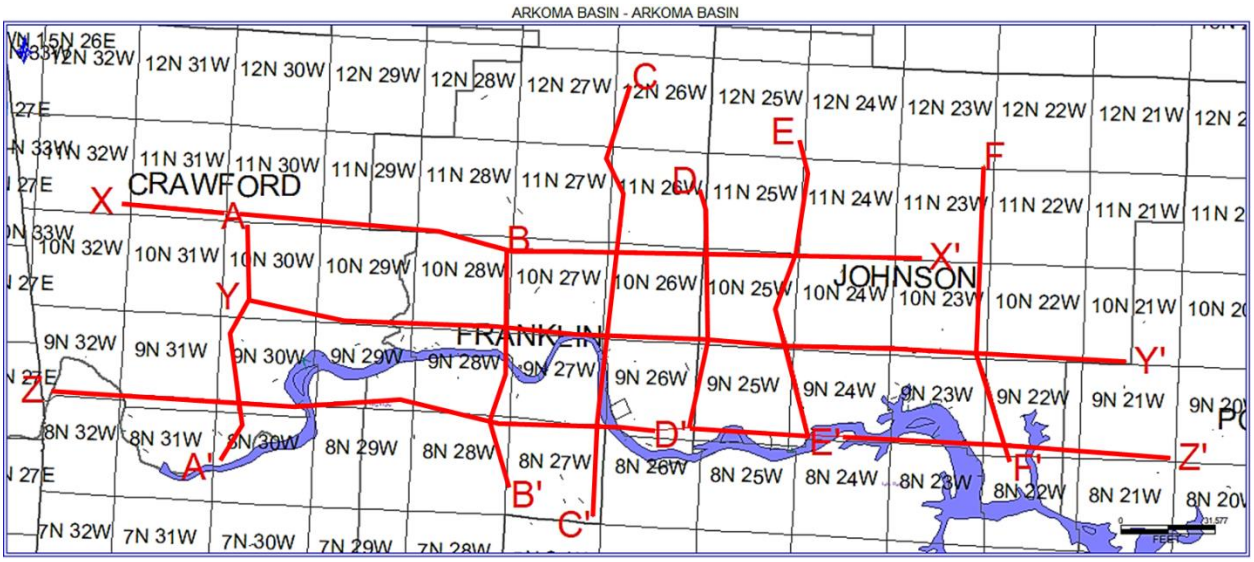

Figure 6-Basemap showing the regional cross section described in this study.

A-A'

This cross section (A-A') (Figures 7 and 8) is about 16 miles long. In T10N R30W S5, the lower Atoka is about 450 feet thick. The lower Atoka maintains a relatively consistent thickness throughout the cross section with about six distinct sandstone bodies and a thick shale base. An exception occurs south of the Mulberry fault in T9N R30W S7 where there is a structural high, and the lower Atoka was exposed to subareal erosion. Here the lower Atoka is only 200 feet thick and the basal shale is still evident, separating only two distinct sand bodies. To T9N R30W S7, only 0.73 miles away, the lower Atoka increases thickness to about 450 feet.

There appears to be another minor structural high in T9N R30W S32, but this structure does not affect the sedimentological aspects of the lower Atoka, and in fact, the lower Atoka increases in thickness by about 100 feet and maintains the thickness to T8N R30W S19. This gradual thickening towards the basin and lack of sedimentological variation suggests that the compressional deformation occurred after lower Atoka deposition and possibly during the boundary of the middle to upper Atoka transition.

The middle Atoka is about 200 feet below the present day surface in T10N R30W S5 and is about 1,300 feet thick there. Across the Mulberry fault in T9N R30W S7, the middle Atoka becomes curious. The thickness of the middle Atoka remains constant indicating no displacement during deposition of the middle Atoka here, but 1,000 feet of the upper Atoka is added. It is possible that the structural high of the lower Atoka was downthrown to base level north of the fault during this time, and progressively deepened during late Atoka time. Less than a mile away at well #0303310339, the middle Atoka increases in thickness by about 1,000 feet to about 2,300 feet thick. The close proximity to the well (API #0303330027) and the dramatic increase in thickness in the middle Atoka suggest the possibility that a normal fault was formed or reactivated in the upper Atoka due to tensional forces in an en echelon fashion. Nevertheless, the dip of the fault approaches 28 degrees or more based on calculations using the horizontal distance of the wells and the vertical displacement of the beds.

Southward in the middle Atoka, the minor structural high in T9N R30W S32 appears to be truncated at the base of the Lower Carpenter as the thickness decreases there, but increases in the surrounding wells. That trend is also noted in the overlying upper Atoka section. The upper Atoka maintains a constant thickness from this area towards the south indicating syndepositional faulting has ceased as gradual infilling continued.

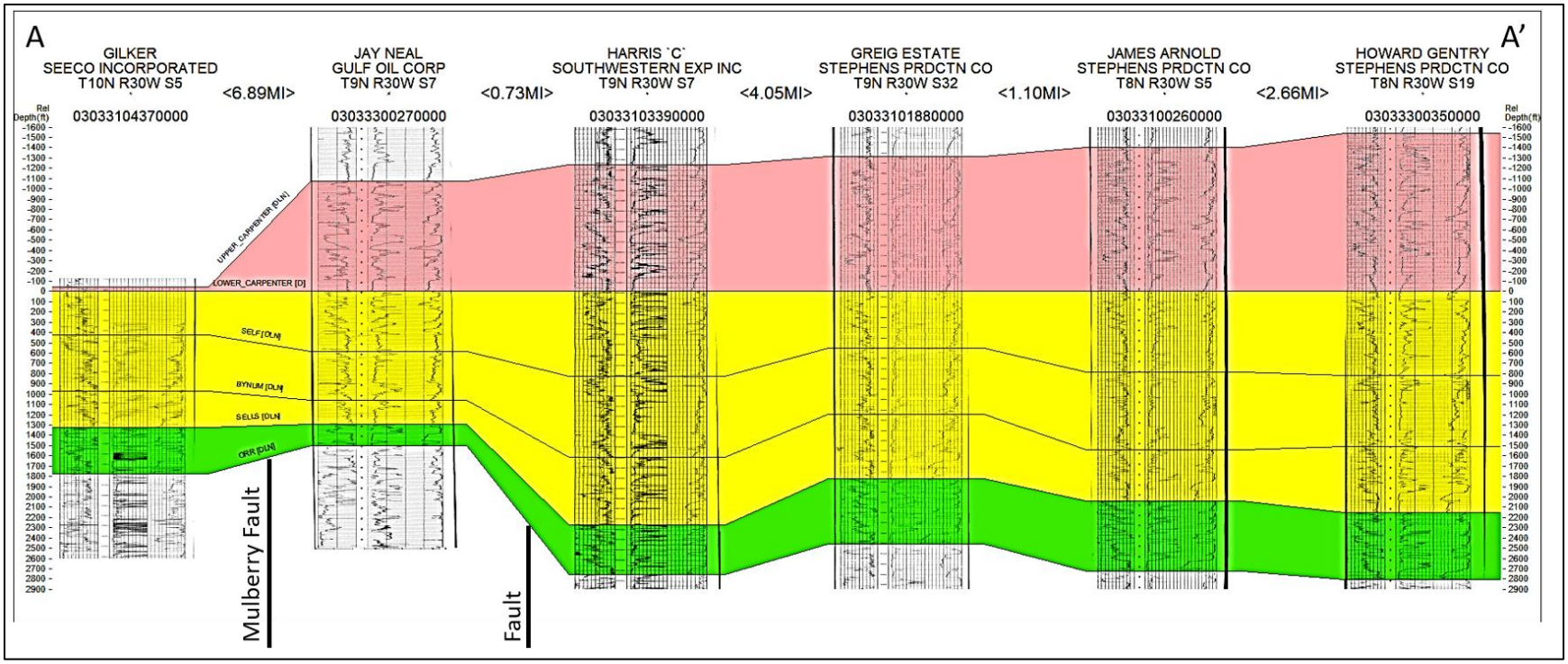

Figure 7-A-A' stratigraphic cross section flattened on the Lower Carpenter of the Atoka Formation. In ascending order: Orr, Sells, Bynum, Self, Lower Carpenter, Upper Carpenter. A few brief points to note-The lower Atoka experiences thinning between faults in T9N R30W S7. The middle Atoka thickens before the upper Atoka in a southward direction, indicating a progression of faulting from south to north during the middle and upper Atoka. The upper Atoka displays only gradual thickening south of the Mulberry fault.

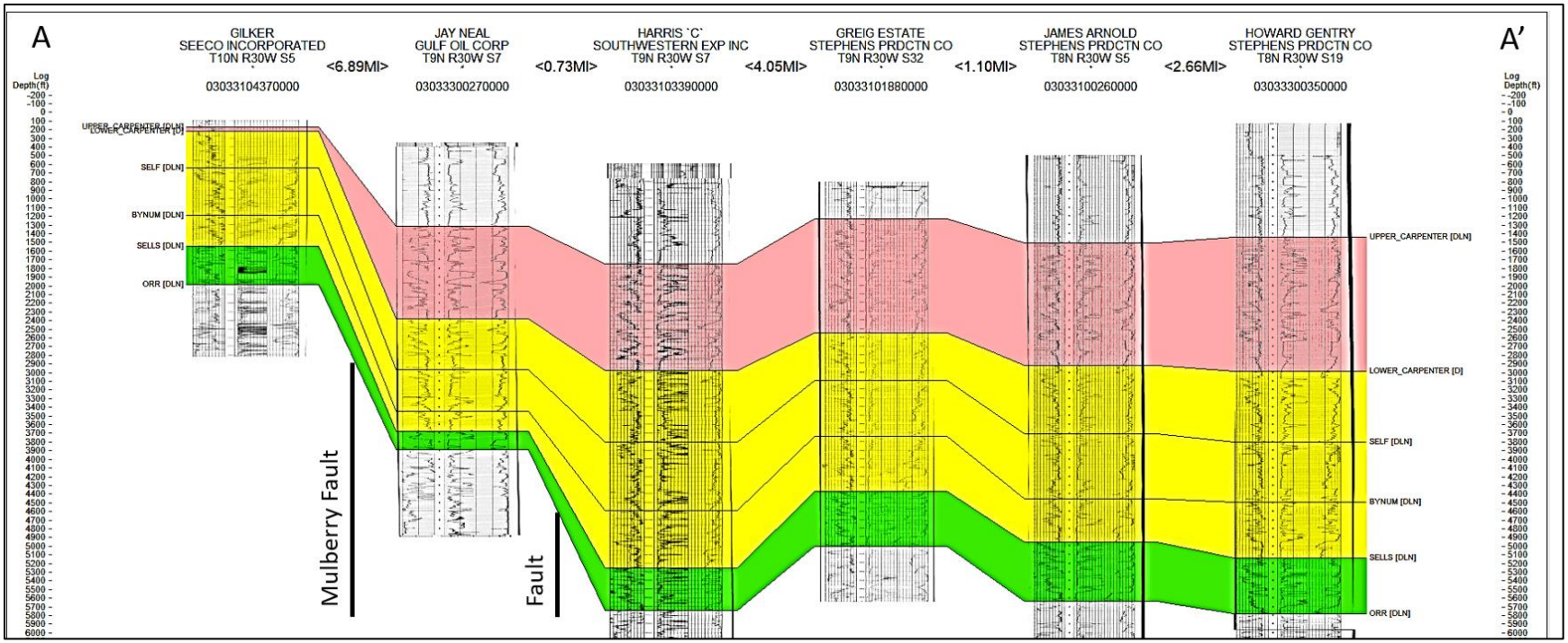

Figure 8-A-A' structural cross section of the Atoka Formation. Of note is the pronounced displacement south of the Mulberry fault and the anticlinal feature in T9N R30W S32.

Z-Z’

Cross section (Z-Z’) (Figures 9 and 10) covers a length of about 70 miles, from west to east, beginning in T9N R32W S32 and ending in T9N R21W S36 (Figures 23 and 24). The lower Atoka undergoes gradual thickening from about 450 feet in T9N R32W S32 to about 850 feet in T9N R21W S36. The same occurs throughout all sections of the middle Atoka, as a whole ranging from 2,000 feet in the west to over 3,100 feet in the east. The upper Atoka remains constant with an average thickness of 1,500.

From T9N R32W S32 to T9N R29W S36, there is a structural high. The base of the Atoka Formation rises from about 5,700 feet below the surface to about 4,500 and from there is depressed again to about 7,000 feet in T9N R21W S36 (Figure 24). This appears to be entirely post-Atoka deformation, as the beds of the Atoka do not display any deformation and the thicknesses remain fairly consistent throughout.

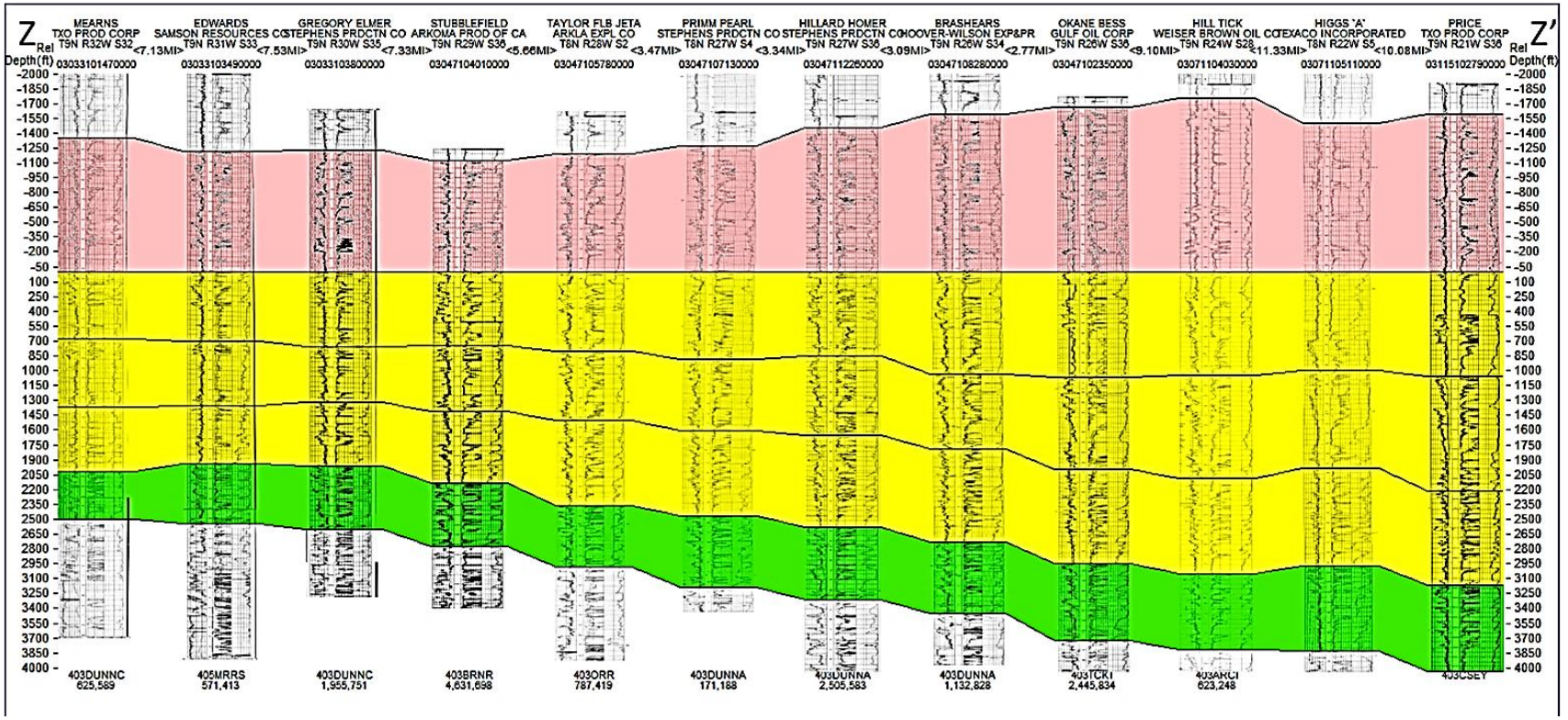

Figure 9-Z-Z’ (west to east) stratigraphic cross section hung on the Lower Carpenter.

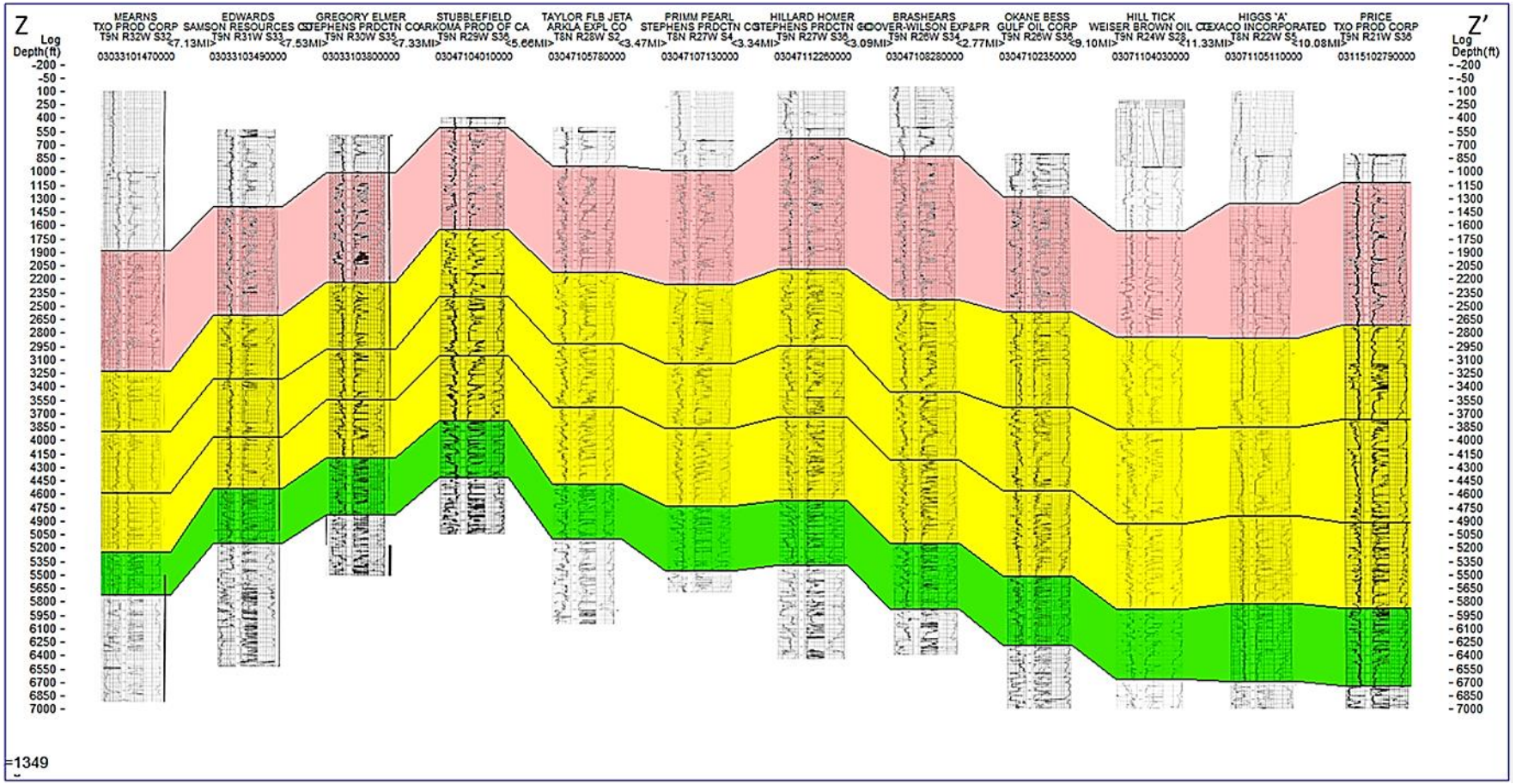

Figure 10-Z-Z' structural cross section. The base of the Atoka Formation rises from about 5,700 feet below the surface to about 4,500 and from there is depressed again to about 7,000 feet in T9N R21W S36. This appears to be entirely post-Atoka deformation, as the beds of the Atoka do not display any deformation and the thicknesses remain fairly consistent throughout.

SUBSURFACE MAPS

Early Paleozoic

Rocks of the early Paleozoic crop out in the Ozark region of northern Arkansas. The Precambrian igneous rocks of the St. Francois Mountains in southeastern Missouri form the core of the Ozark Dome and the younger, overlying rocks dip gently away from there. Few wells have penetrated the Precambrian and Early Paleozoic and so there is a dearth of subsurface information about these units. For this study, the focus will begin with the Late Devonian and Early Mississippian Chattanooga Shale.

Devonian

Kinderhookian

In 1905, Adams and Ulrich applied the name Chattanooga for an Upper Devonian shale located in Washington County, Arkansas. The shale also goes by the name Woodford and is located below the surface in Oklahoma. It is a widespread, black, fissile shale with an unknown provenance, but recent geochemical work has hypothesized that it was deposited in shelfal marine waters sourced from the Laurentian cratonic interior (Basnett, 2017) (Figure 11). Few wells have been completed in the Chattanooga Shale in Arkansas (Houseknecht et al, 2014). It is likely that the Woodford shale in Oklahoma is the deep water equivalent of the shallow water Chattanooga Shale (Manger, personal comm.).

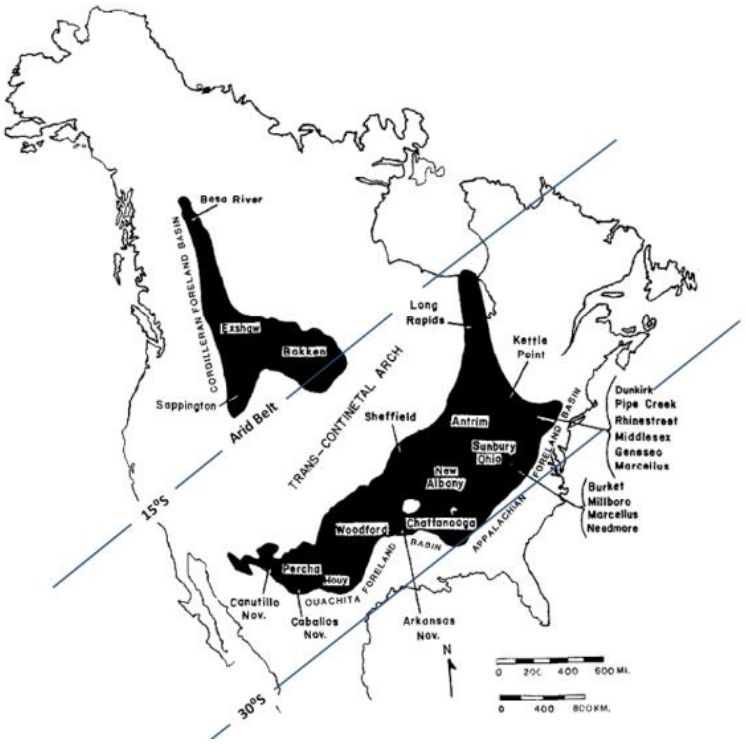

Figure 11-Devonian/Mississippian shale fairway with approximate paleoattitudes (Modified from Ettensohn, 1992).

The Kinderhookian Chattanooga Shale is the first easily recognizable ‘marker bed’ in the study area. In a few places in the extended study area, the Chattanooga Shale is only locally exposed at the surface most likely due to faulting (Haley et al, 1976). In the subsurface, as with all structure maps in this area, the Cass and Mulberry fault systems exert such control on the structure, that structure maps are not informative (Figure 12). The Chattanooga shale is located less than 500 feet from the surface in the northern part of the study area and reaches a maximum depth of 11,000 feet in the southern part. In T19N R31W, the Chattanooga Shale is located less than 100 feet below the surface.

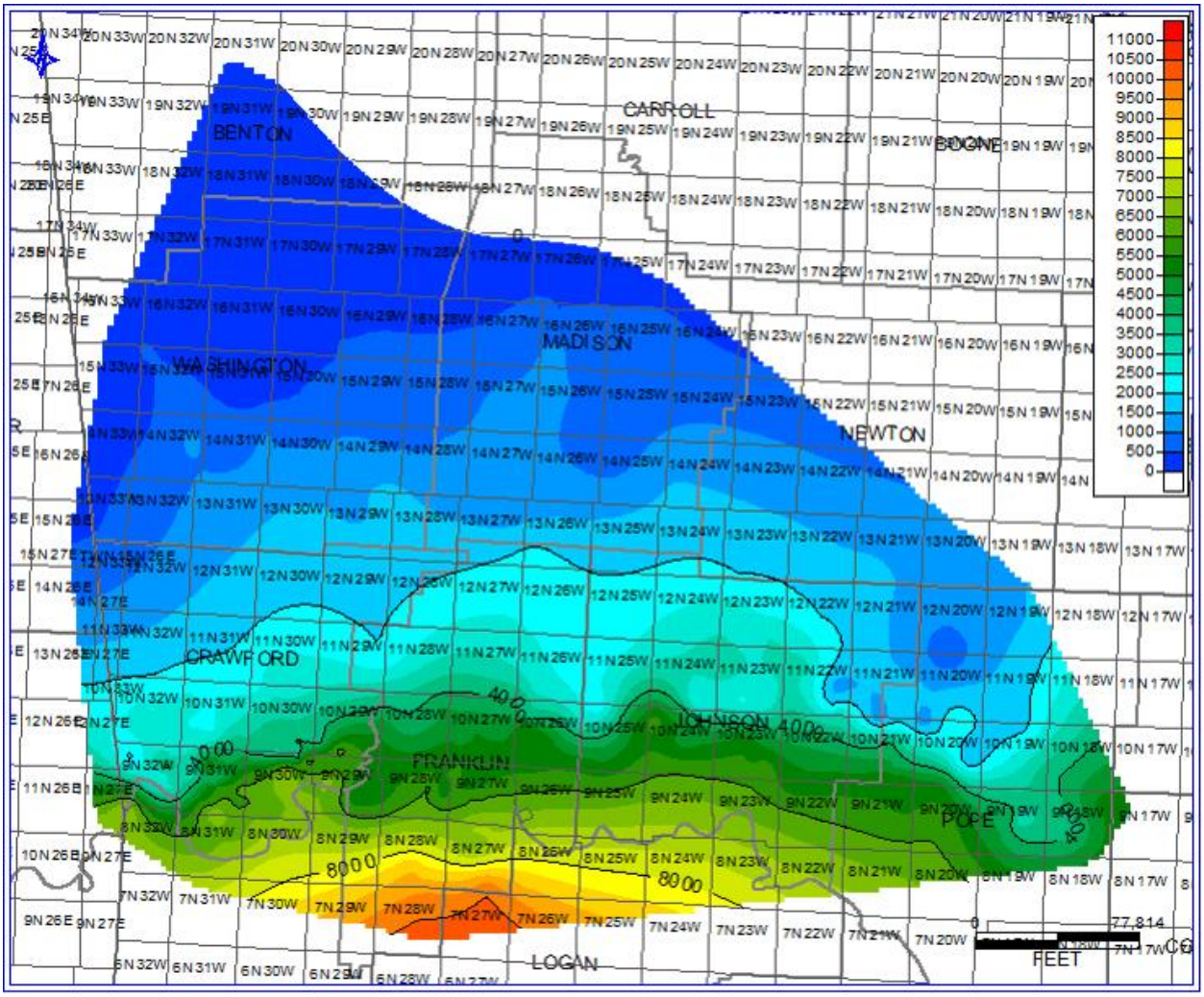

Figure 12-Structure map of the Chattanooga Shale with cold colors being shallow and hot colors being deep. The Mulberry fault controls the structure of the Chattanooga, as with all units in this study. To the north, the Chattanooga Shale is less than 100 feet below the surface and is locally exposed in some places.

The thickness of the Chattanooga Shale in the study area exhibits a few interesting topics of discussion. The Chattanooga shale is bounded above and below by unconformities. The underlying Hunton Group experienced karsting and is responsible for the patternless deposition of the Chattanooga (Figure 13). However, near the town of Saint Paul, there is a Hunton topographic high, where the Chattanooga shale attains a thickness of less than 15 feet about

2,000 feet below the present day surface. This high is bounded by lows to the southeast near Clarksville, north near Hunstville and west towards Lincoln where the thickness reaches 50 feet. There are localized lows of Hunton with the thin Chattanooga trends southwest towards Fort Smith. Just north of Fort Smith in 10N 32W is where the Chattanooga experiences the greatest change in thickness over the shortest horizontal distance. There is about a 30-foot change in thickness over five miles from south to north. There is also a localized Hunton paleotopographic high centered east of Fayetteville where the thickness of the Chattanooga is also less than 20 feet bounded by lows centered in Huntsville, Bentonville, and west of Fayetteville, down towards West Fork, where the shale reaches a thickness approaching 60 feet. North of Fort Smith, the Chattanooga thickness of about 50 feet trends due north all the way to the northern extent of the study area (Figure 13).

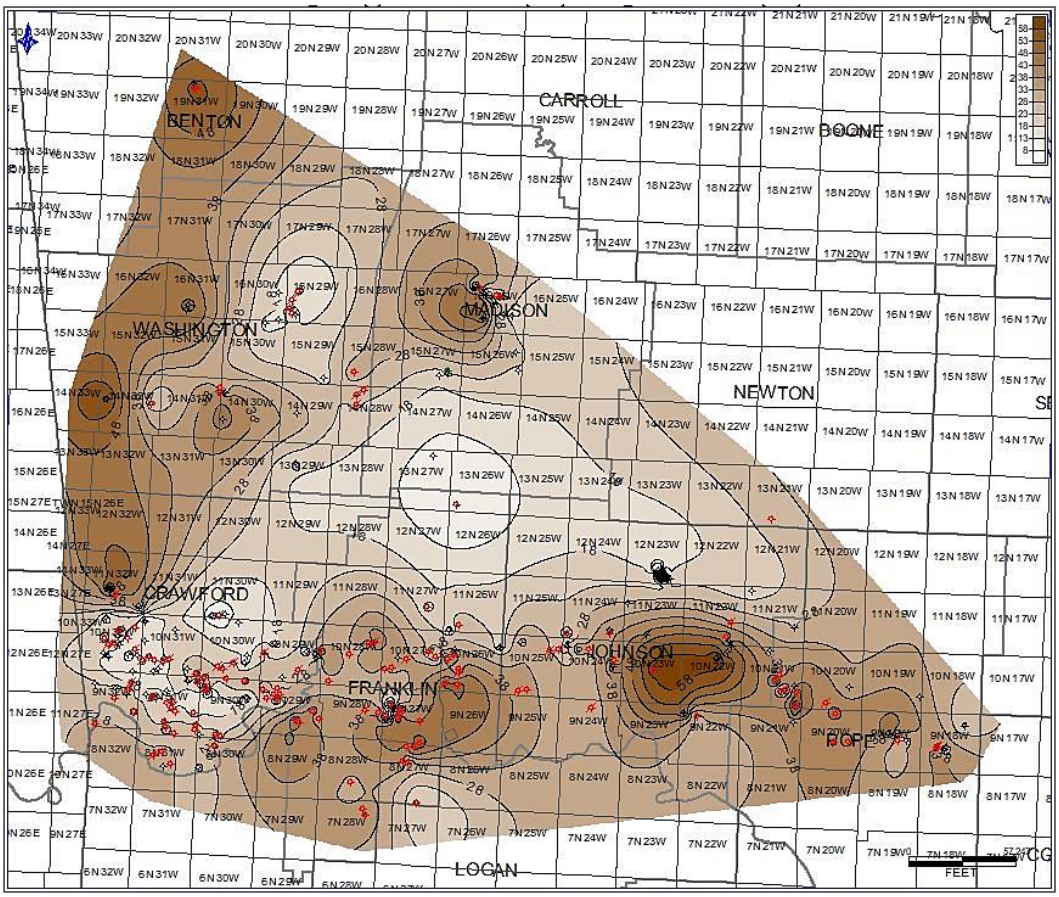

Figure 13-Isopach of the Chattanooga shale in the study area.

Unconformably overlying the Chattanooga Shale is the Boone Formation. The rocks of the Boone Formation reflect the regional structure of pre-Atoka rocks.

Mississippian

Osagean

The Osagean Boone Formation is the dominant surface unit in the Ozarks of northern Arkansas. The Boone was deposited in warm, shallow seas analogous to the modern day Bahamian Carbonate Bank. The generalized lithic character of the Boone Formation is light gray, fine to coarsely crystalline, fossiliferous chert with interbedded chert and cherty limestone.

Branner first named it in 1891 for typical exposures in Boone County, Arkansas. In the study area, the Boone in the subsurface thickens from south and southwest to the northeast and reaches a maximum thickness approaching 400 feet (Figure 14). To the south and southeast, the Boone is roughly 175 feet due to subareal erosion caused by the onset of the Ouachita Orogeny (Haley and Hendricks, 1972). Frezon and Glick in 1959 stated that the shale content of the Boone increases to 95% to the east towards White County (Figure 14).

The subsurface structure of the Boone Formation is not informative, as Atokan deformation has effected the subsurface structure of the Boone. The prominent structural feature is the Mulberry fault in which there is about 2,000 feet of displacement down-to-the-south. From the G Sharp well (API #03087100390000) in T16N R26W S15 to the Heinrichs well (API #03047101620000) in T8N R27W S34, the dip is approximately 174 feet per mile (Figure 14). The Boone Formation crops out in Washington, Newton and Madison Counties, and towards the southern extent of the study area, near the Arkansas River, is at a depth of approximately 9,000 feet from the surface.

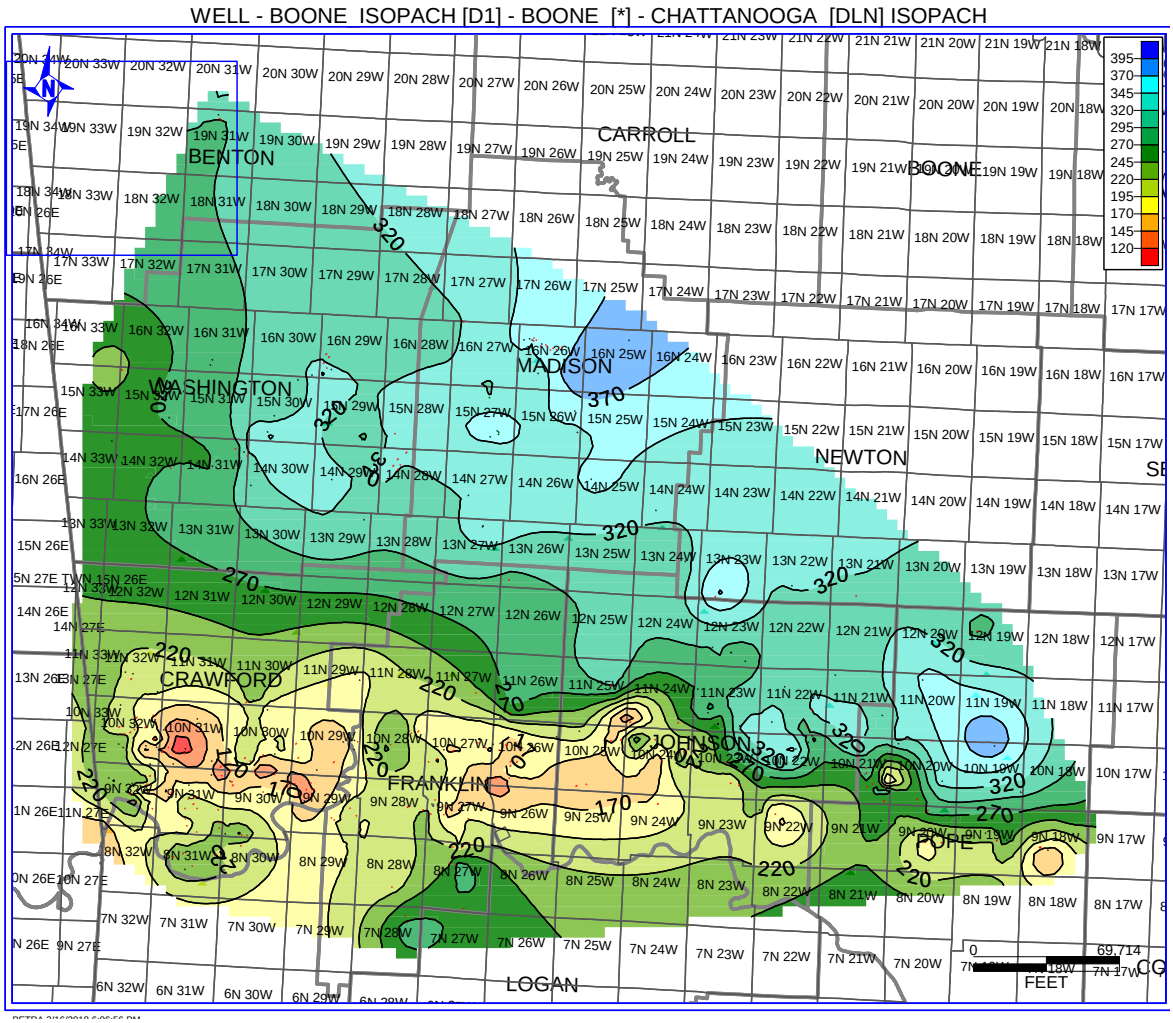

Figure 14-Isopach of the Boone Formation. Warm colors are thinner and colder colors are thicker. To the south and southeast the Boone is roughly 175 feet due to subareal erosion according to Haley and Hendricks (1972). To the northeast, the Boone approaches 400 feet in thickness. To the east, the shale content of the Boone increases (Frezon and Glick, 1959, plate 2)

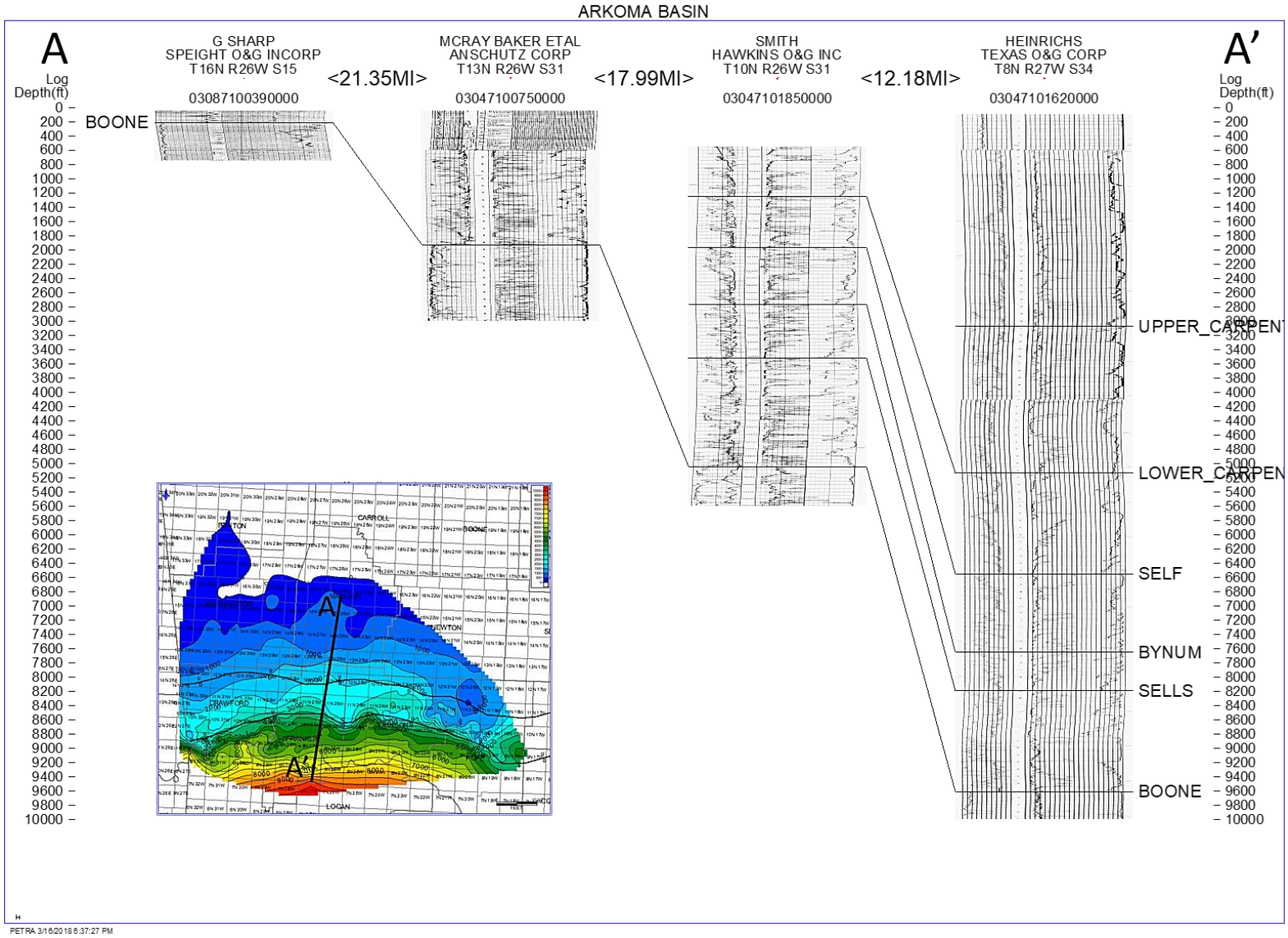

Figure 15-North to South cross section showing the Boone Formation in the subsurface. The average dip is 1.89 degrees.

Meramecian and Chesterian

For this study, all of the units underlying the Pennsylvanian Hale Formation and overlying the Osagean Boone Formation are generalized as Meramecian and Chesterian. These units include, in ascending order of age, the Moorefield, Ruddell, Batesville, Fayetteville, Pitkin and Imo. The units are taken as a whole (Figure 16) and no attempt is made at differentiating them.

The Meramecian is described as a time of retreating epeiric seas from the midcontinent as the Burlington Shelf gave way to a less extensive shelf called the Arkoma Shelf (Manger and Zachry, 2009). Deposition of the Moorefield limestone continued in much the same way as the Boone, while the Ouachita trough to the south began accumulating turbidites (Sutherland, 1988). In the southern Ozarks, the Batesville sandstone is a probable first-order sandstone derived from sediment supplied by an Appalachian source to the east through the ancestral Mississippi Embayment (Moyer and Manger, 2006).

Overlying this is the organic rich Fayetteville Shale. This is a dark to black shale with a unit of sandstone called the Wedington sandstone. The Wedington sandstone was deposited from a delta that prograded from northwest to the southeast. The Pitkin Formation is a dark grey to brown carbonate that conformably overlies the upper Fayetteville shale and represents a shoaling upward sequence with the Mississippian-Pennsylvanian boundary at the top (Moyer and Manger, 2006).

The isopach (Figure 16) reveals about 500 feet of sediments coming from the north and northwest of the study area and thinning to the southeast. This is consistent with a retreat of the sea to the south and sediments infilling the Ouachita trough.

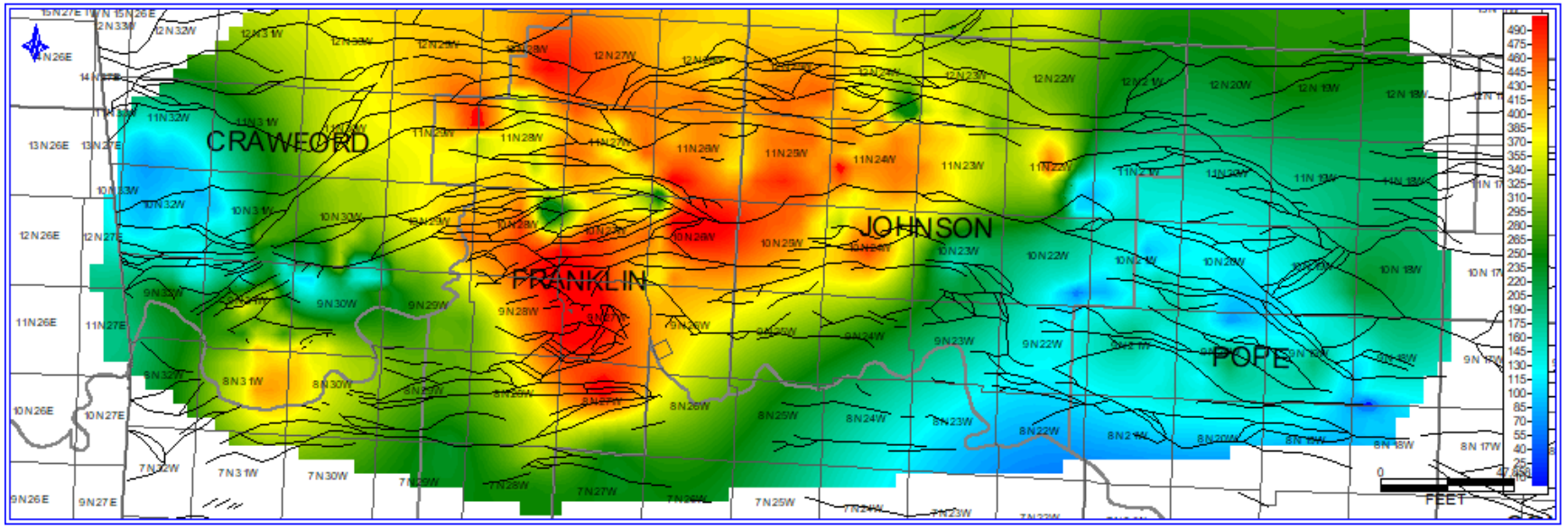

Figure 16-An isopach of the late Mississippian Meramec and Chester units. They include the Moorefield limestone, the Batesville sandstone, the Fayetteville shale, and the Pitkin Formation. During this time, epeiric seas of the midcontinent were regressing southward and sediments were being deposited from the north. The warm colors represent thick and cool colors represent thin. To the north, the sections are about 500 feet thick and thin to the southeast to less than 100 feet.

Pennsylvanian

Morrowan

Hale Formation

Ulrich (1905) and Taff (1905) both named the Hale Formation at the same time. The formation comprises the lower part of the Pennsylvanian system in the Arkansas Valley. It is unconformably underlain by the Pitkin Formation and dips toward the south into the Arkoma Basin. The formation consists of two members, the lower Cane Hill Member and the upper Prairie Grove Member (Figure 17).

Bloyd Formation

Purdue (1907) named the Bloyd Formation from exposures near Bloyd Mountain in Washington County. The rocks of the Bloyd Formation in the Arkansas Valley are in descending order: Kessler Limestone, Dye Shale, Woolsey Shale, and the Brentwood Limestone. According to Zachry (1977), the Bloyd accumulated in shallow marine and non-marine sedimentary environments and is a heterogeneous succession of limestone, sandstone, and siltstone. The Bloyd Formation conformably overlies the Prairie Grove Member of the Hale Formation and is overlain by the successions of shale and sandstone of the Atoka Formation (Figure 17).

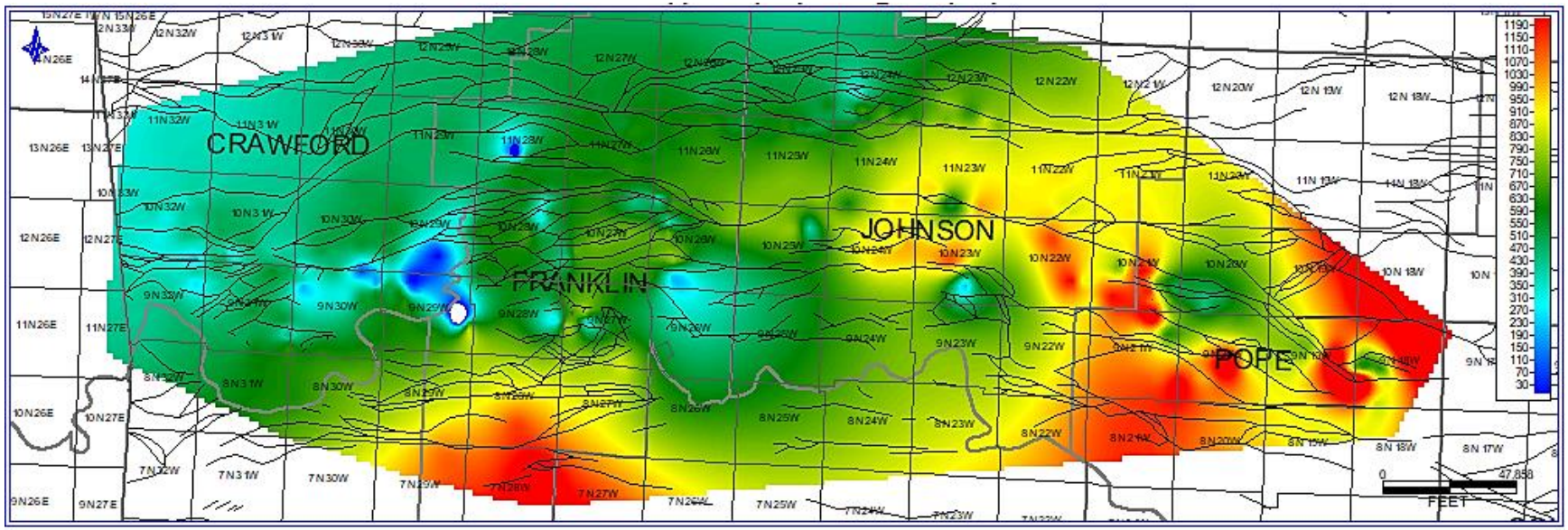

Figure 17-Isopach of the Morrowan interval in the study area. The units composing the Morrowan are the Hale and the Bloyd Formation. Thicknesses approaching 1,000 feet are observed in the southern and the eastern portion of the study area. Localized areas of less than 100 feet of sediments are observed in the central part of the study area in 10N 29W and 9N 29W as well as 11N 28W. Averages of 500 feet of sediments are present in most of the northwestern portion of the study area.

Atoka Formation

Taff and Adams (1900) first used the name Atoka for a unit in Atoka County, Oklahoma. Ulrich (1904) named the equivalent rocks in Arkansas 'Winslow'. Croneis (1930) surmised that the 'Winslow' Formation that was mapped by Purdue (1907) is the same as the Atoka Formation of Taff and Adams (1900). The Atoka in Arkansas overlies the Bloyd Formation and in Oklahoma, it overlies the Wapanucka.

Lower Atoka

The lower Atoka is commonly divided into 7 or 8 laterally persistent sandstones starting with the Orr sandstone. This work focuses on the basal Orr-Patterson relationship and continues to describe the unit as a whole in terms of structural timing and sedimentology.

Patterson-Orr

Figures 18 and 19 depict the Patterson-Orr interval, which defines the base of the Atoka for this study. The Patterson-Orr units in the subsurface of the study area range from about 20 to 180 feet thick. The units generally thin towards the south and southwest and thicken significantly in the center of the map from about 11N 28W to 9N 22W. The thickest areas appear suddenly from the north and are inferred to be a product of a tectonic event near the Cass fault system with displacement of about 40 feet (Figures 18 and 19). The source of the units appear to be localized from the north. The well log signatures from west to east across this area reveal coarsening upward, prograding sand bodies (Figure 18). From north to south there is a marked thinning of sand bodies southward near the distal end of the presumed fan (Figure 19). 1,688 wells were used to create this map and well spacing is good.

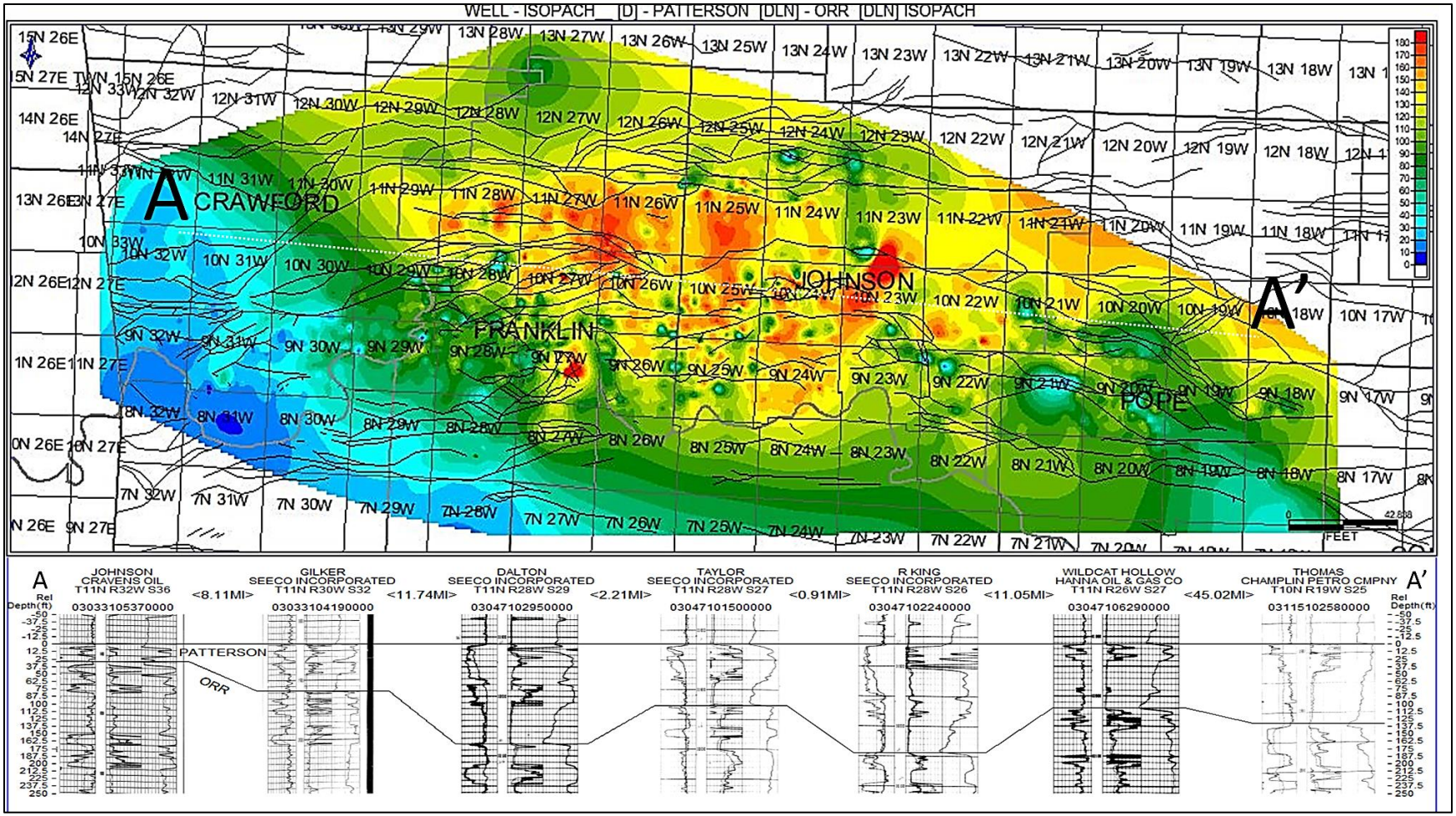

Figure 18-Isopach of Patterson-Orr interval with warm colors depicting thick and cool colors depicting thin. The isopach is accompanied by a cross section going west to east. The image is overlain by a shape file with mapped faults from Haley et al. This image shows the very onset of deposition of the Atoka Formation. The faulting occurred along the Cass fault system and the gamma ray response shows a coarsening upward sequence. The source of the sediments is from the north and east. Very little deposition occurred to the southwest. This is interpreted as a delta fed submarine fan.

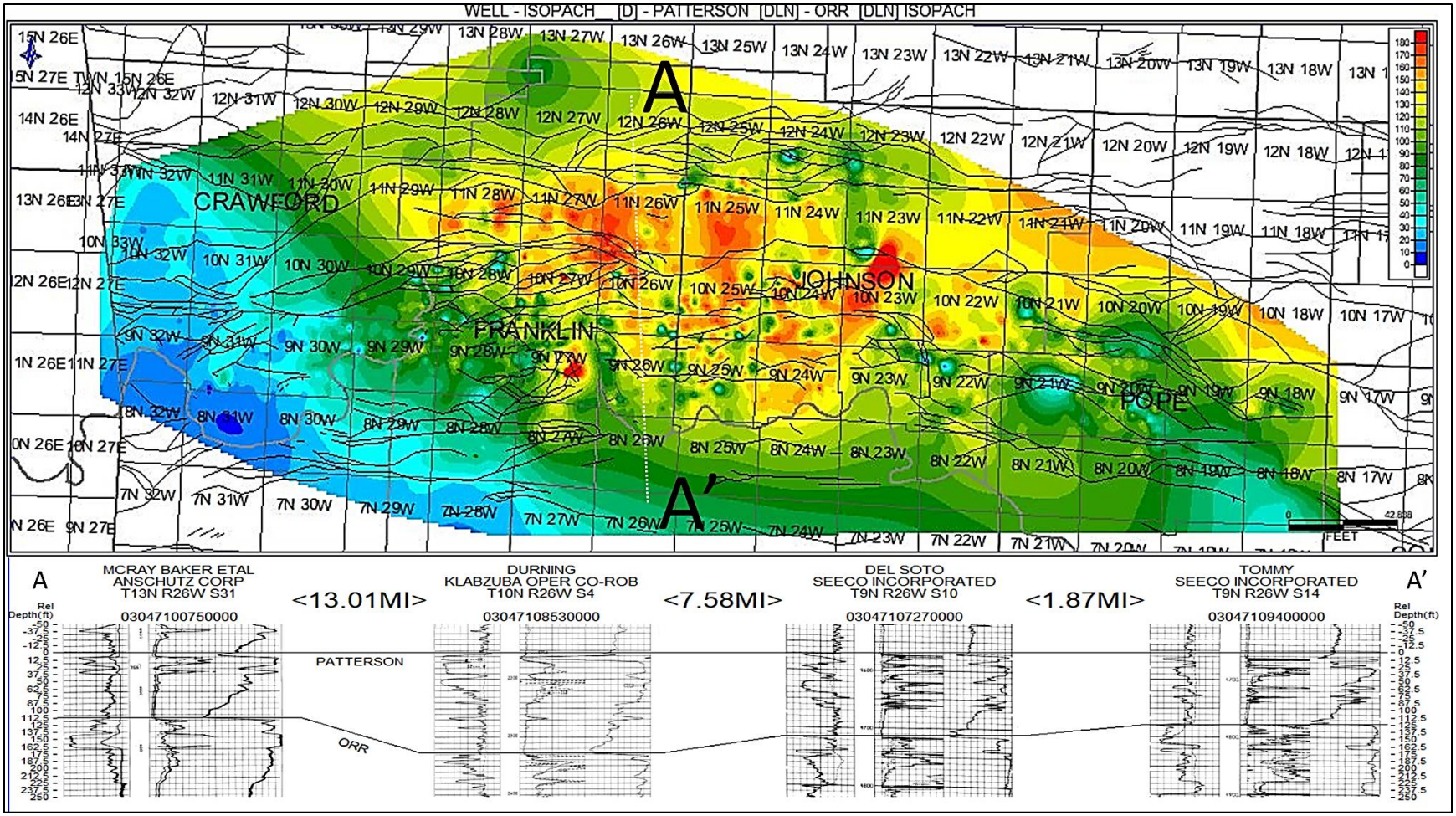

Figure 19-The same isopach map in Figure 12 except for a north to south cross section. The cross section depicts a proximal to distal profile of what is interpreted as a delta fed submarine fan with fringe frontal splays. The stacking pattern of the sands shows thickening and coarsening up of the lobes in the proximal part of the fan, with less sand content in the distal portion.

Figures 20 and 21 show the lower Atoka thickness as a whole unit from the base of the Sells sandstone to the base of the Orr sandstone. The present day structure of the lower Atoka mimics the present day structure of the northern Arkoma Basin with pronounced down-to-the south displacement along the Mulberry fault. It ranges in depth from the surface to about 10,000 feet in the study area. The isopach of the lower Atoka shows thickening from north to south with localized area of thin lower Atoka. It ranges in thickness from about 230 feet to about 1,000 feet in the study area. This indicates that about 800 feet of accommodation space was available for deposition of the lower Atoka. About 300 feet of displacement seems to be apparent along a general trend line between 9N and 10N. The conclusion here is that the onset of down-to-the-south normal faulting occurred north of the Mulberry fault system and south of the Cass fault system with southward progression of down-to-the-south faulting and was not extreme.

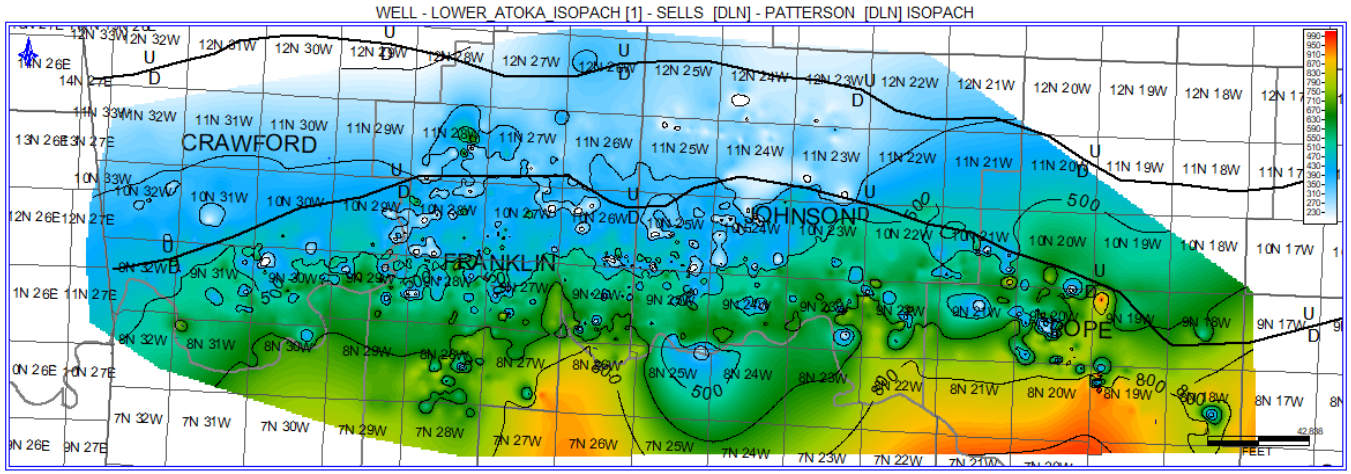

Figure 20-Lower Atoka isopach from the Sells to the Patterson

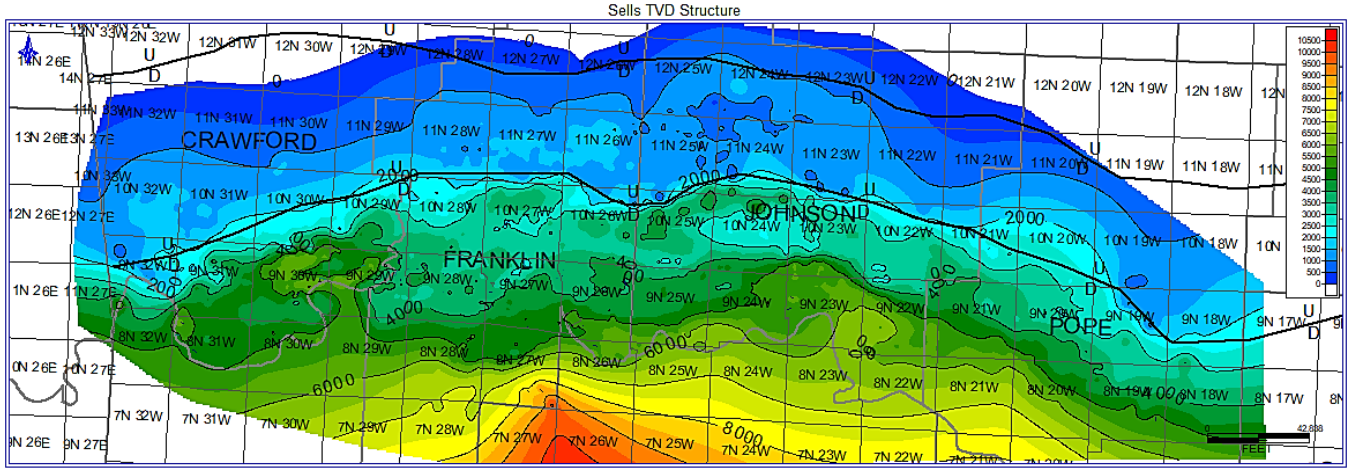

Figure 21-Sells structure

Middle Atoka

The middle Atoka as a whole is defined in this study as the top of the Sells Sandstone to the base of the Lower Carpenter sandstone. The middle Atoka is characterized by the presence of extreme thickening over down-to-the-south normal faults in the study area. This work subdivides the middle Atoka into three parts: lower, middle and upper. The lower middle Atoka is from the base of the Sells sandstone to the base of the Bynum sandstone. The middle middle Atoka is from the base of the Bynum sandstone to the base of the Self sandstone. The upper middle Atoka is from the base of the Self sandstone to the base of the Lower Carpenter sandstone.

There is about 100-300 feet of shale overlying the Sells sandstone almost everywhere in the study area, indicating the onset of a widespread transgression. Another thick shale of about 400 feet overlies the Bynum sandstone and another of about 300 feet overlies the Self sandstone. Taken together, there are at least three major transgressions and regressions in the middle Atoka in the study area, with many more less intense transgressive-regressive cycles intermixed throughout.

Lower Middle Atoka

Sells-Bynum

In this study, the top of the Sells sandstone forms the base of the middle Atoka section. In terms of the Atoka as a whole, the Sells is the sixth laterally persistent sandstone unit from the Orr sandstone in most of the study area.

The trend of thickness of the lower middle Atoka seems to mirror the curvilinear trace of the Mulberry fault, albeit farther to the south by about 10 miles everywhere. It ranges in thickness from 200 feet to 1,100 feet and thickens from north to south (Figures 22 and 23).

There appears to be thicker areas of deposition in the southern limit of 10N 25W extending west to 10N 26W. This is interpreted as a strand plain/barrier island system. Also of interest is the present day structure of the lower middle Atoka shows a structural low in 9N 30W and the isopach map also shows thickening in the section, indicating that the structure became active and partially infilled during this time.

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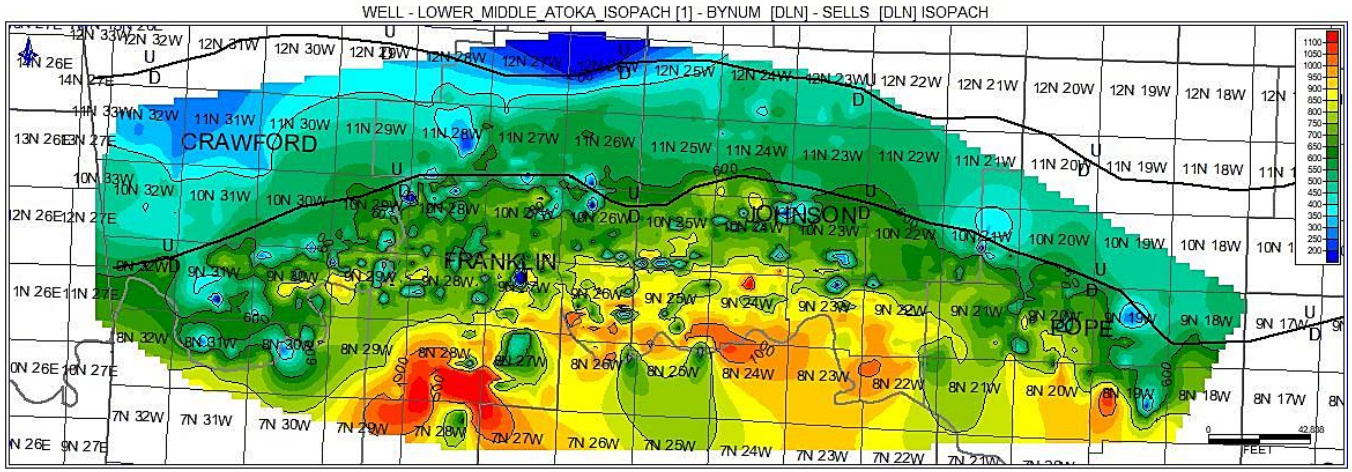

Figure 22-Lower middle Atoka isopach from the Bynum to the Sells

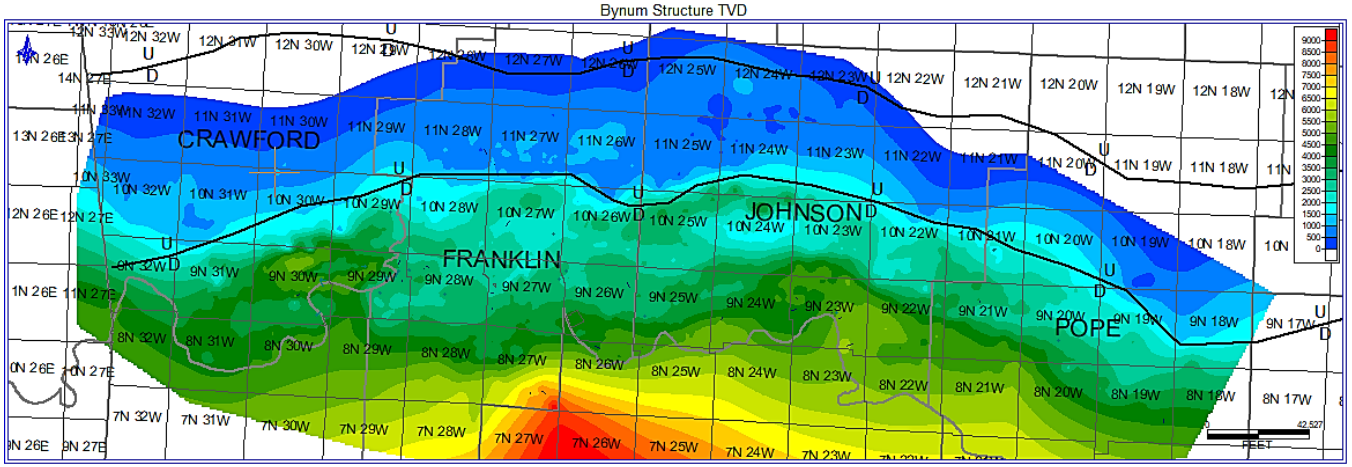

Figure 23-Bynum structure map.

Middle Middle Atoka

Bynum-Self

Throughout most of the study area, the Bynum sandstone is defined as the third laterally persistent sandstone from the top of the Sells sandstone. It displays a classic prograding, coarsening upwards feature and ranges in thickness from 100 to 150 feet (Figures 24 and 25).

By the middle of the middle Atoka, deposition seems to have shifted towards the southeast. This is evidenced in Figure 24 by a southwest trend of thickening. The middle middle Atoka ranges in thickness from 10 feet in the north and over 1,400 feet in the south and southeast. Deposition in modern day structural lows, as seen in Figure 25, continued in the middle of the middle Atoka, reaching thicknesses upwards of 1000 feet. Specifically, lows in 9N 30W and 11N 25W were infilled during this time.

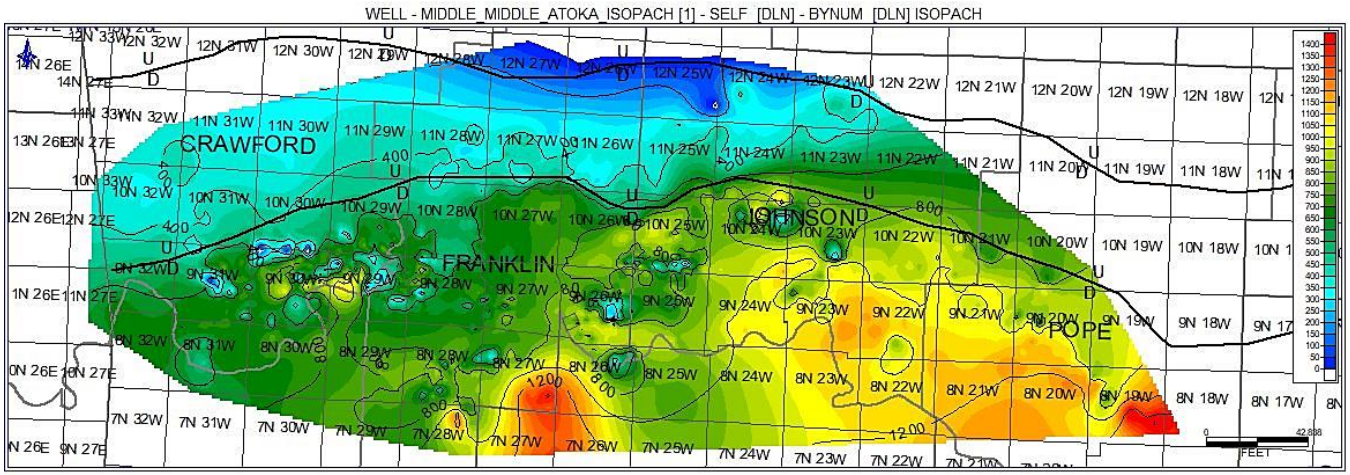

Figure 24-Isopach of the middle subdivision of the middle Atoka from the Self to the Bynum.

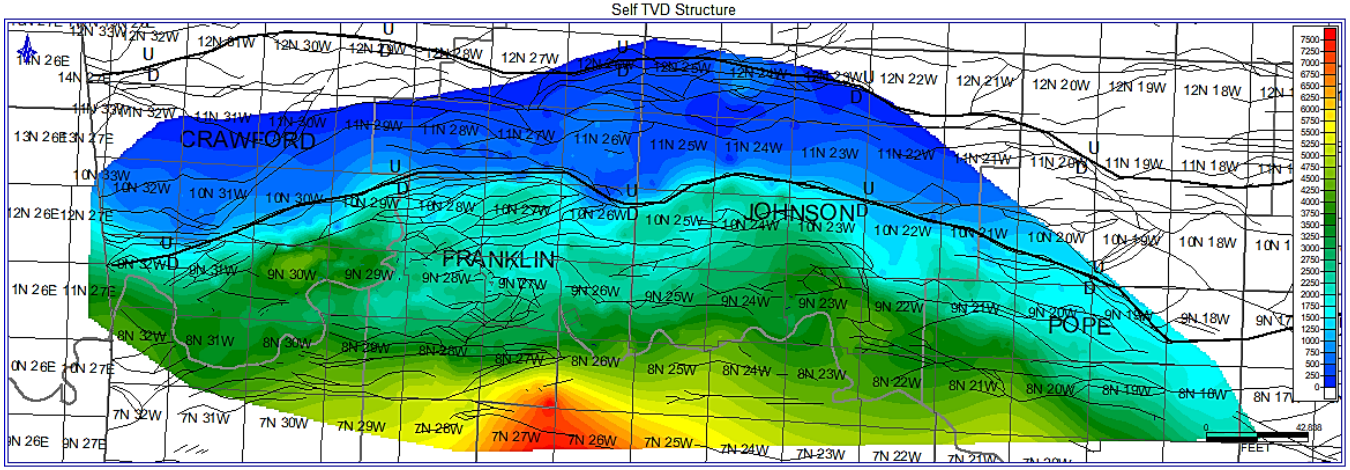

Figure 25-Structure map of the Self.

Upper

Self-Lower Carpenter

Figures 26 and 27 show the isopach and the present day subsurface structure of the upper middle Atoka respectively. The upper middle Atoka is defined from the top of the Self sandstone to the top of the Lower Carpenter. The Self is the third persistent sandstone above the Bynum in most of the area and the Self sandstone is a thick succession, 500 feet plus, of sandstone and shale units. The upper middle Atoka displays a north to south thickening trend with about 100 feet to the north about 1,400 feet to the south. In the study area, the depocenter starts to shift back west and configure more normally to the present day trace of the Mulberry fault. Deposition in structural lows still occurs during this time, but is much less extreme, as the lows were probably almost fully filled.

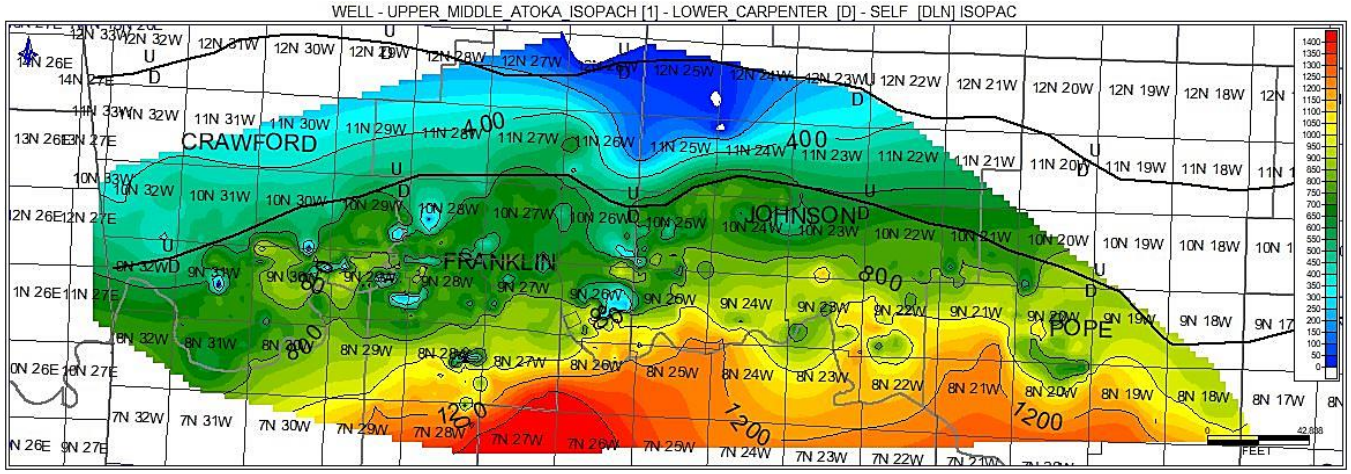

Figure 26-Upper middle Atoka Isopach from the Lower Carpenter to the Self

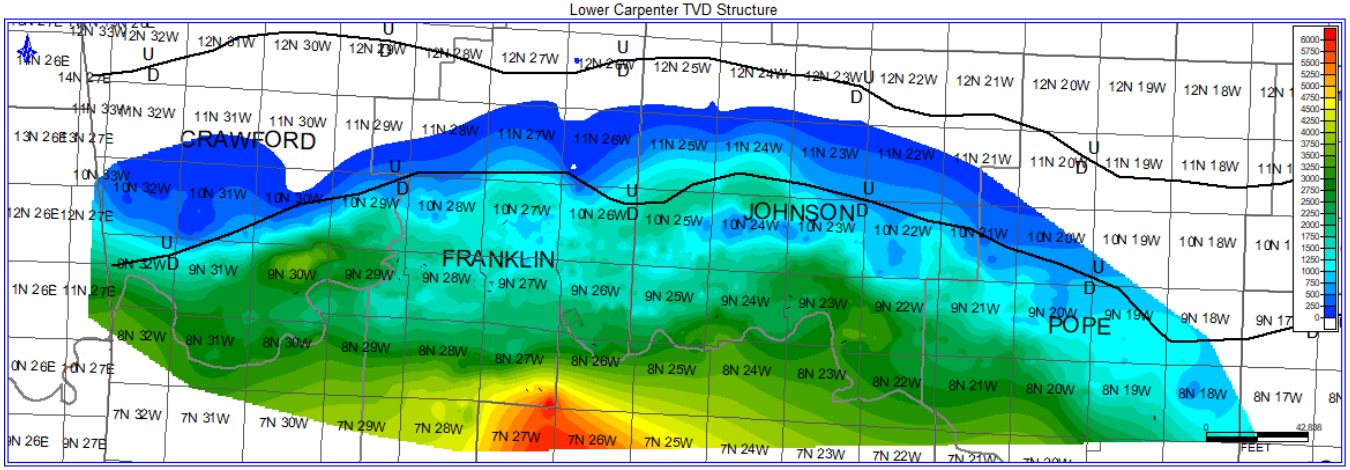

Figure 27-Lower Carpenter structure map

Upper Atoka

The Upper Atoka in this study is defined from the top of the Lower Carpenter sandstone to the top of the Upper Carpenter sandstone. It occurs almost exclusively south of the Mulberry fault and thickens from about 700 feet to the north to almost 2,500 feet in the south, towards the Arkansas River (Figures 28 and 29). The Upper Carpenter sandstone is defined in this study as a thin sandstone of about 25 feet that overlies the thick sequence of sandstones and shales below and is bounded at the top by upwards of 300 feet of shale.

Figure 29 appears to show a birds foot delta feeding the structural low in 9N 30W and bifurcating channels to the east. Deposition in the localized structural lows have all but ceased and deposition occurs mainly to the south past the Arkansas River.

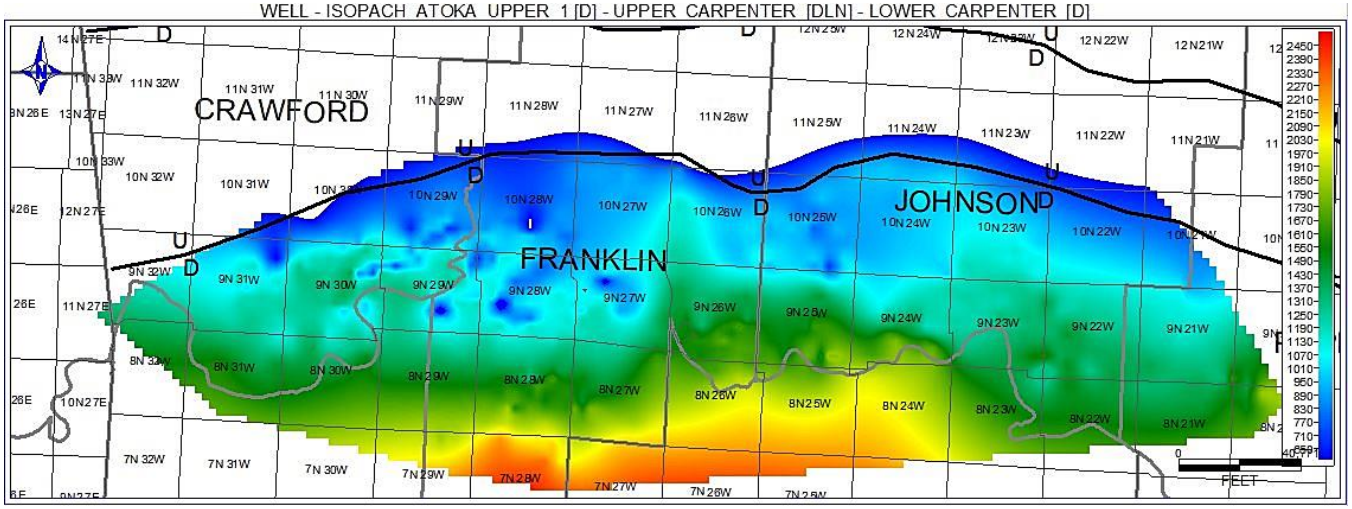

Figure 28-Upper Atoka Isopach from the Upper Carpenter to the Lower Carpenter

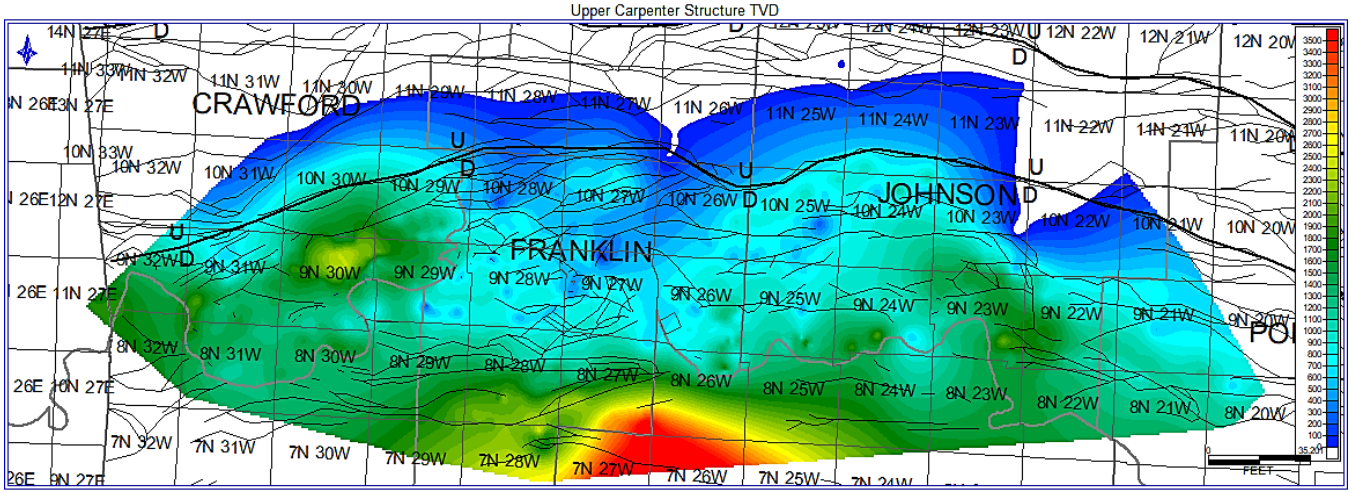

Figure 29-Upper Carpenter structure map

Desmoines Series

Rocks of the Desmoines Series comprise most of the surface exposures in the Arkoma Basin. The Desmoines Series in the Arkoma Basin consists of four units from oldest to youngest: Hartshorne sandstone, McAlester Formation, Savanna Formation and Boggy Formation. All of these units consist of sandstone, shale and coal and an unconformity marks the base of the Hartshorne. The Hartshorne is described as a light gray, very silty, very fine-grained sandstone and medium gray siltstone with minor amounts of dark gray shale and light gray, slightly silty, very fine to fine-grained sandstone.

CONCLUSIONS

The lower Atoka marks the onset of tectonic subsidence in between the Mulberry and the Cass Fault systems and displays a maximum of almost 1,000 feet of thickening in the study area. The middle Atoka in the same area gains a maximum of 4,000 feet of sediment. The upper Atoka achieves a maximum thickness of 1,800 feet.

Minor tensional forces were present towards the Arkansas River during the early Atoka time. The Patterson-Orr interval marks the beginning of the tensional faulting north of the Arkansas River. Submarine fans were formed here, fed by river deltas to the north. These were accompanied by minor compressional forces to the south creating minor folds in the lower Atoka, most likely from the Ouachita Orogeny. Structural lows were formed and partially infilled during this time. The normal faulting continued northward and became much more intense during the middle Atoka. Infilling of lows and syndepositional faulting are prevalent in this period. Towards the middle of the middle Atoka there was more compressional folding which ceased in the upper middle Atokan time. The upper Atoka is characterized by almost complete infilling of all minor structural lows north of the Arkansas River and continuing infilling of the Arkoma Basin.

The trace of the Mulberry fault approximates the structure of the Arkoma Basin. The Cass fault was active during the middle Atoka but did not provide enough accommodation space for sediments of the upper Atoka. The Mulberry fault has discontinuous dips along its trace. Maximum fault dips along the Mulberry fault are reached near Van Buren, Alma, and Dyer. A band trending northwest starting near 10N 25W and ending in 11N 23W also attain maximum fault slope. Dips here reach greater than 10 degrees. Less steep faults are predominant just north

of Clarksville and Lamar as well as 8N 27W. A discontinuity in the Mulberry fault occurs in 10N 29W and 10N 28W near the town of Mulberry. The sheer number of faults occurring here obscures the fault dips.

East-west shortening occurred after the formation of the-Arkoma Basin. In the study area, the units from the lower Atoka to the upper Atoka experience gradual thickening to the east in an undisturbed fashion. The present day structure of the units suggest post depositional deformation, possibly in the Permian time. Normal faulting in the northern part of the basin had ceased in a regional sense by the middle part of the middle Atoka. Localized continuation of faulting occurred in a few areas of the upper middle Atoka and by the time of the upper Atoka, all faulting had ceased. A minor northeast trending fault in 9N 27W was active during the lower Atoka and ceased by the middle Atoka.

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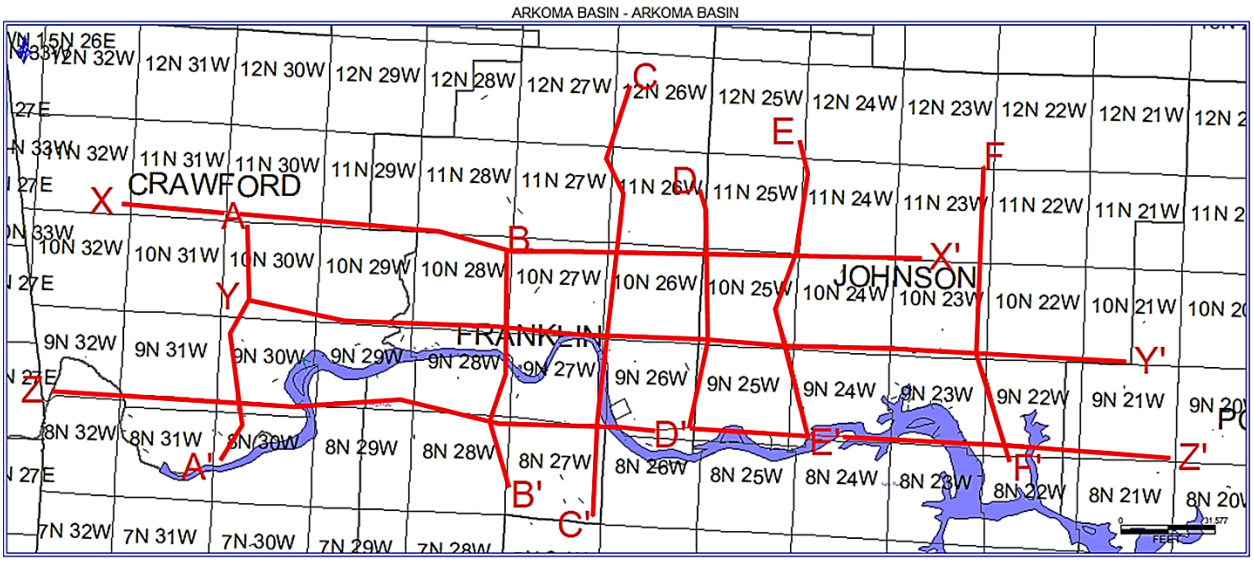
APPENDIX 1

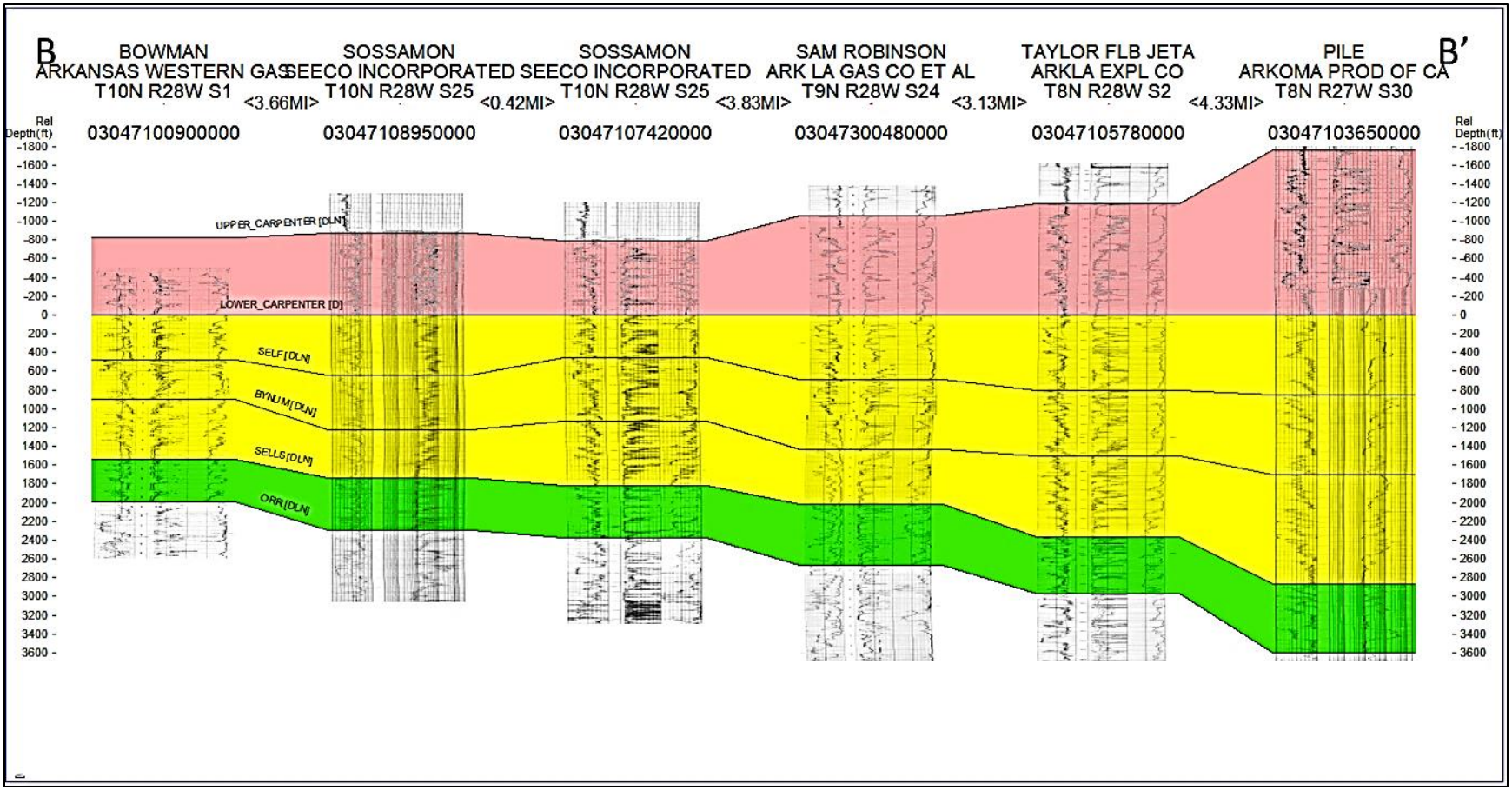


B-B

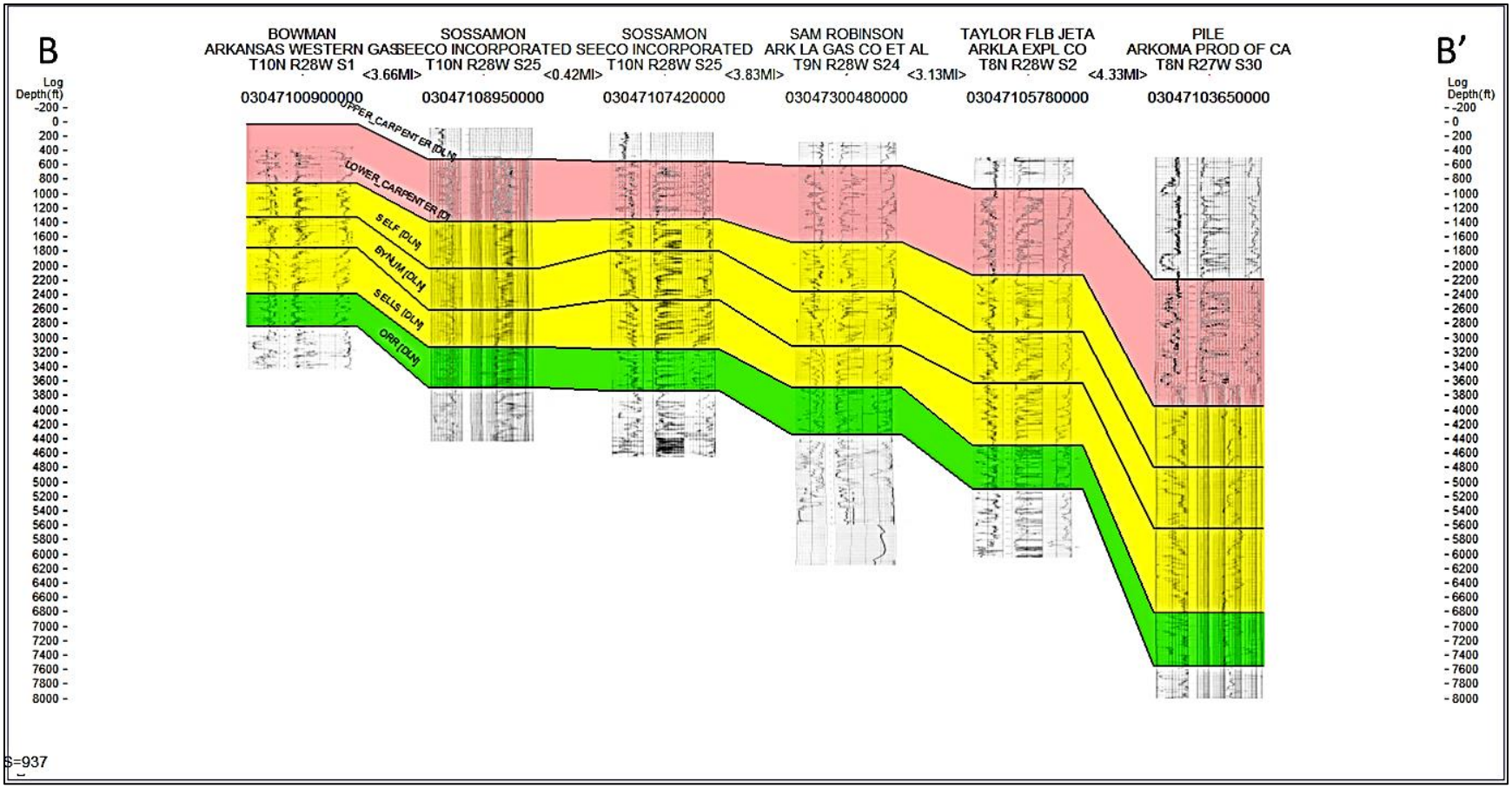
Cross section (B-B') (Figures 9 and 10) is about 16 miles long from north to south. The cross section only covers the subsurface geology south of the Mulberry fault, because the well logs to the north were not usable. Starting with the lower Atoka, the unit displays gradual thickening towards the south. The sedimentology remains fairly consistent throughout the cross section.

The middle Atoka thickens from about 1,550 feet in T10N R28W S1 to over 2,800 feet in T8N R27W S30. It shows a thickening of shale units and an increase in number of coarsening upwards sand bodies throughout.

The surface unit in T10N R28W S1 is inferred to be the Upper Carpenter. The thickness of the unit there is about 800 feet. Southward the unit thickens to over 1,800 feet for a total displacement of 2,600 feet for all units.



A1- This stratigraphic cross section (B-B') is 16 miles long from north to south and is hung on the Lower Carpenter. The cross section only covers the geology south of the Mulberry fault, because the well logs to the north were not available. From the lower Atoka, the unit experiences gradual thickening towards the south.



A2-C-C’ structural cross section.

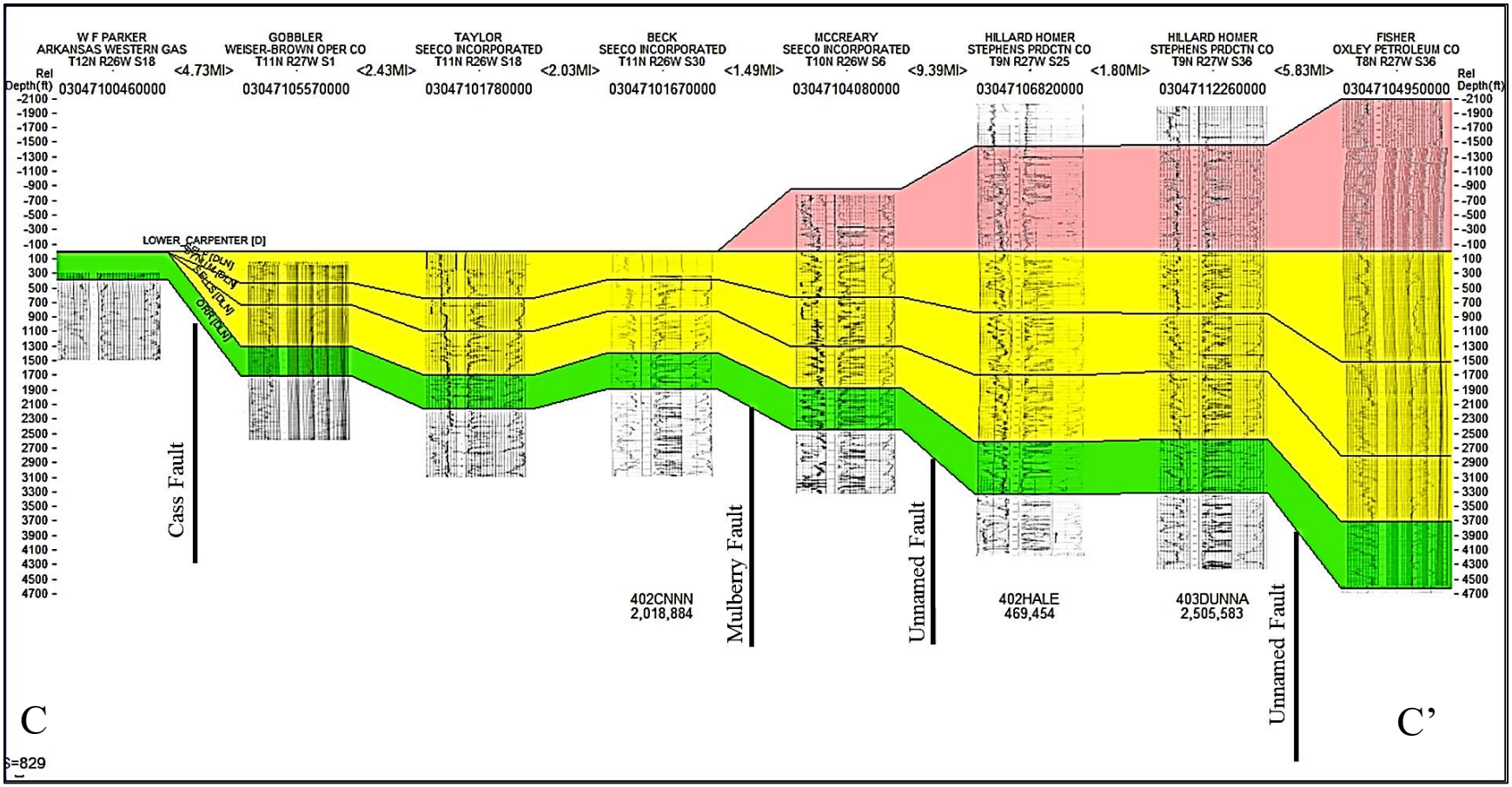
C-C’

This cross section (C-C’) (Figures 11 and 12) is the longest north to south cross section in this study, about 30 miles, and the only cross section that was available to show the Cass fault. The lower Atoka appears to thicken south towards the basin. At T12N R26W S18, the Orr sandstone is probably exposed at the surface, or the base of the Sells, and is about 300 feet thick. It does not show thickening across the Cass fault, and only about 100 feet across the Mulberry fault. This indicates that faulting progressed northwards during the formation of the lower Atoka and had not yet reached today’s arbitrary northern Arkoma Basin limit of the Mulberry fault. In T8N R27W S36, the lower Atoka is about 900 feet thick, indicating a total displacement across all faults of about 600 feet. The shale content at the base of the lower Atoka appears to increase towards the basin. There appears to be a structural low at T11N R26W S18.

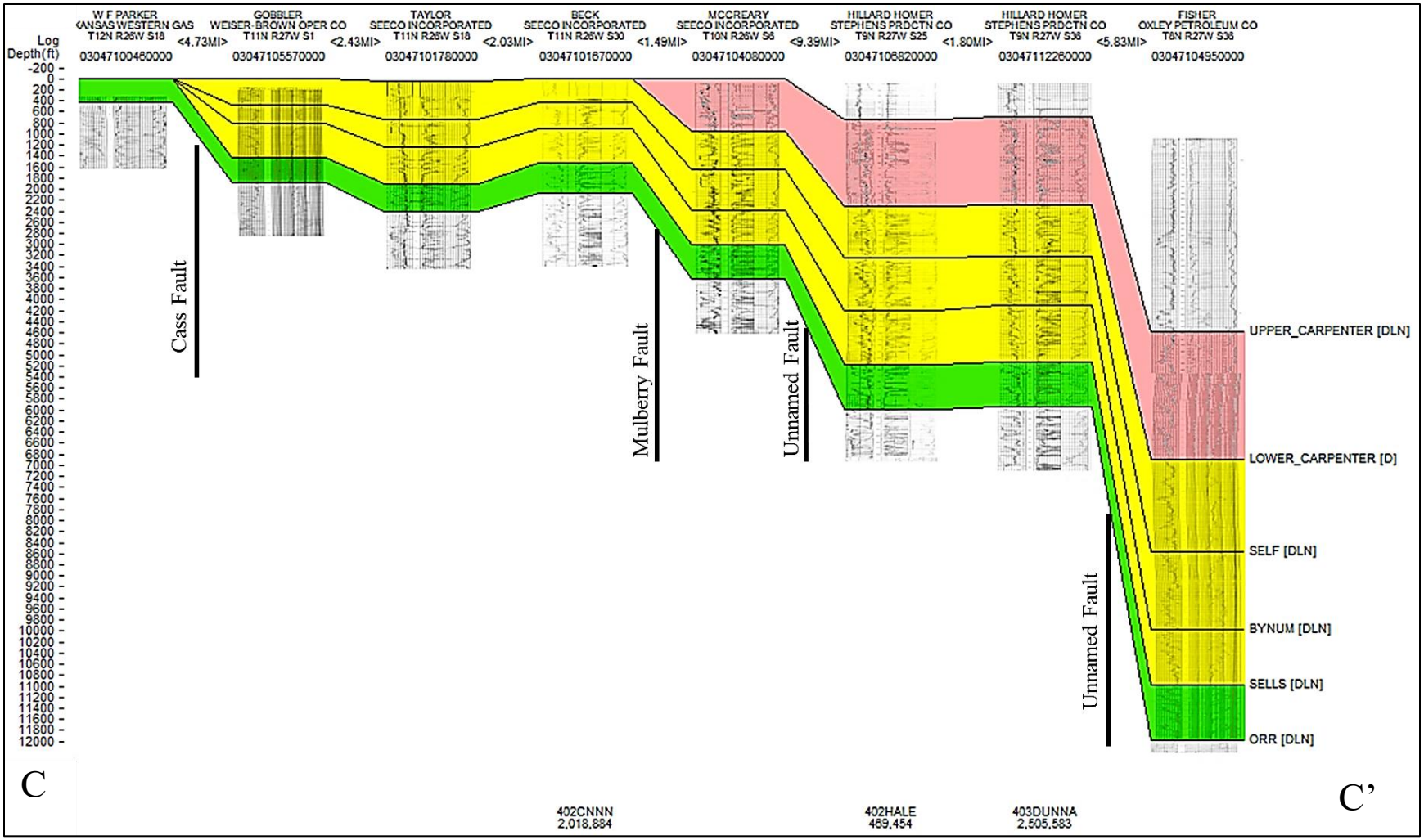
The middle Atoka is absent, or very thin, at T12N R26W S18. Across the Cass fault, the middle Atoka reaches a thickness of 1,300 feet at T11N R27W S1 and the Lower Carpenter is probably the surface unit. This does not change until T10N R26W S6, south of the Mulberry Fault, where the upper Atoka Upper Carpenter is probably the surface unit. There does not appear to be dramatic thickening of the middle Atoka across the Mulberry Fault in this cross section and it is not until T8N R27W S36 that the middle Atoka thickens to 3,700 feet.

The upper Atoka appears south of the Mulberry fault with about 900 feet of Upper Carpenter in T10N R26W S6. In T9N R27W S25 another 600 feet of displacement is added and the thickness increases to about 1,500 feet. In T8N R27W S36, the upper Atoka gains about 700 feet of thickness for a total of 2,100 feet.

In total, the whole Atoka Formation thickens by about 6,300 feet in this cross section.



A3- This cross section (C-C') is the longest north to south cross section in this study, about 30 miles, and the only cross section that was available to show the Cass fault.



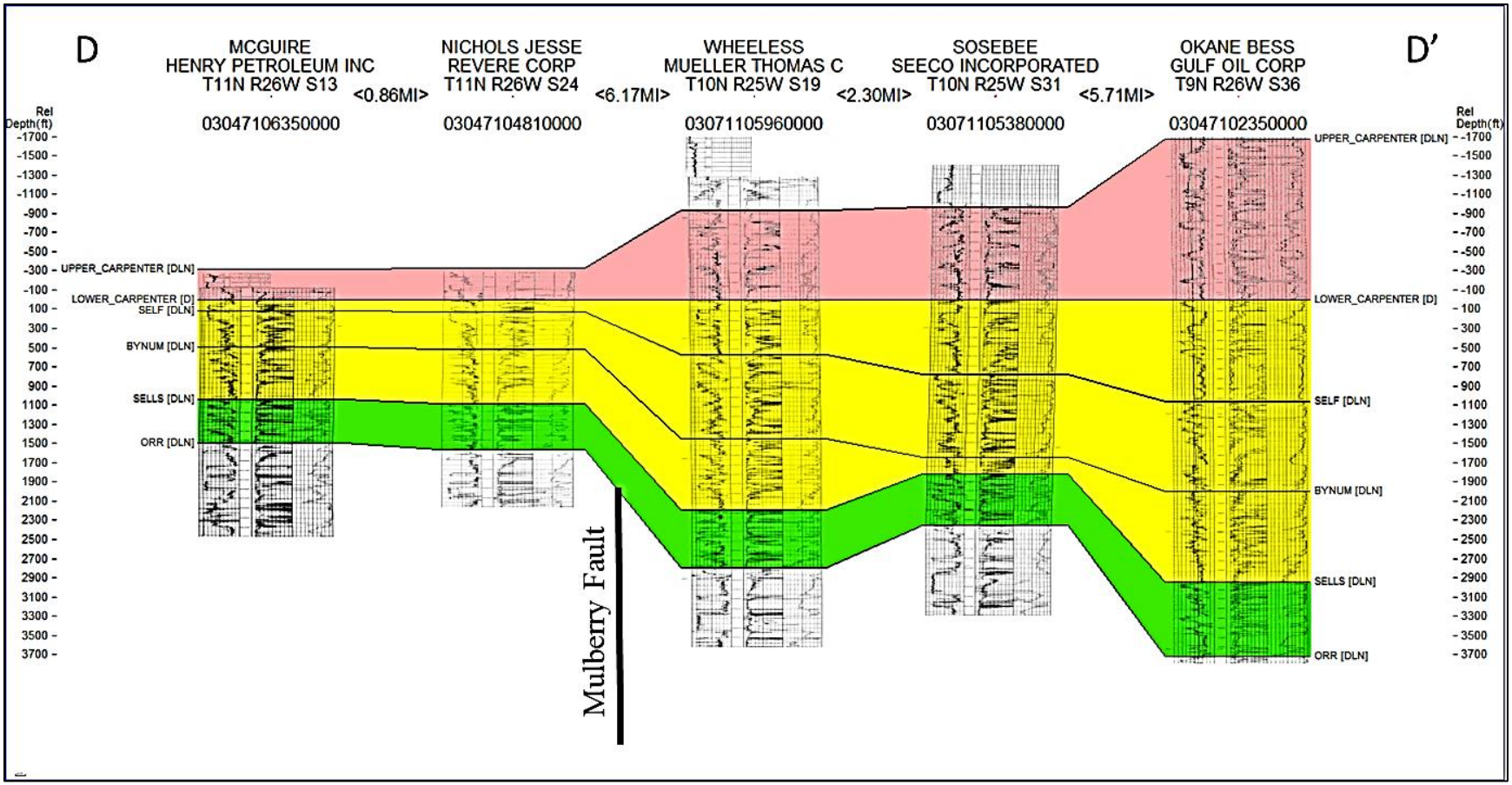
A4-C-C’ structural cross section.

D-D’

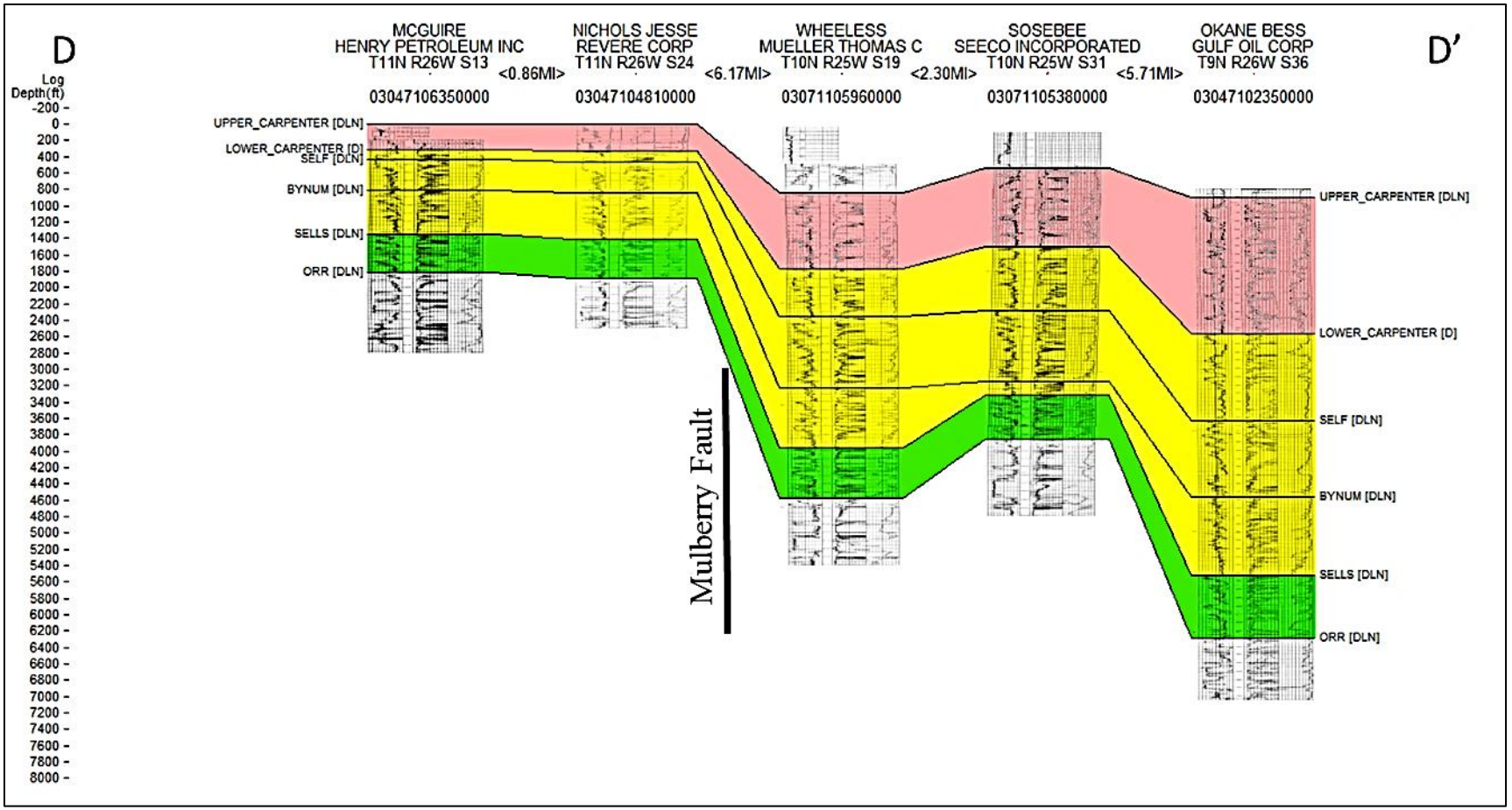
This cross section (D-D’) (Figures 13 and 14) is about 15 miles long from north to south. The lower Atoka is about 400 feet thick in T11N R26W S13 and gradually thickens to 700 feet in T9N R26W S36. The sedimentological aspects remain fairly consistent. Structurally, there is a high in T10N R25W S31, which appears to have formed during the lower part of the middle Atoka ceasing during Bynum deposition based on no thickness variation in the Bynum across wells.

The middle Atoka is about 1,000 feet thick north of the Mulberry fault, and thickens to over 2,000 feet south of it. The lower middle Atoka appears to have experienced some compressional folding which either exposed it to subareal erosion, or otherwise experienced no deposition. The cross section reveals that across the Mulberry fault, the lower middle Atoka does not undergo noticeable thickening implying that during this time, tensional forces were not active. This ceased during the middle part of the middle Atoka time as the units thicken from 300 feet north of the Mulberry fault, to over 1,000 feet to the south and continue to do so until the upper Atoka.

The upper Atoka does experience about 500 feet of thickening across the Mulberry fault, but thickness change is more pronounced farther south in T9N R26W S36 indicating a southward acceleration of throw during this time.



A5- Structural cross section (D-D') is about 15 miles long from north to south. The lower Atoka is about 400 feet thick in T11N R26W S13 and gradually thickens to 700 feet in T9N R26W S36. The sedimentological aspect remain fairly consistent. Structurally, there is a high in T10N R25W S31, which appears to have formed during the lower part of the middle Atoka ceasing during Bynum deposition.



A6-D-D’ structural cross section.

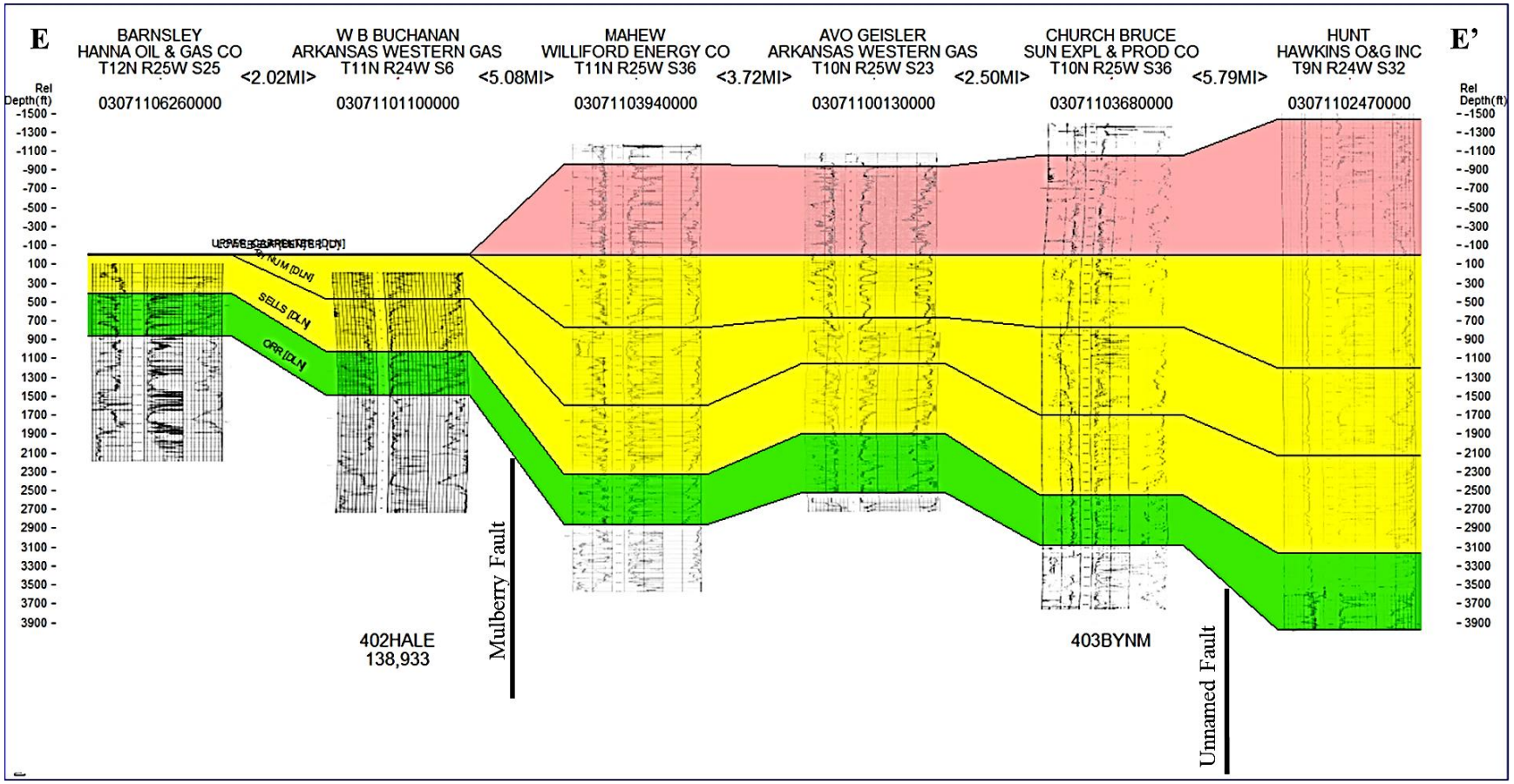
E-E’

The cross section (E-E’) (Figures 15 and 16) is approximately 20 miles long north to south. The lower Atoka is about 400 feet thick in T12N R25W S25 and is overlain by 400 feet of the Bynum sandstone of the lower middle Atoka, which appears at the surface. The lower Atoka maintains a constant thickness except in T9N R24W S32, where it doubles in thickness to 800 feet at about 6,600 feet below the surface. There appears to be a minor structural high in T10N R25W S23.

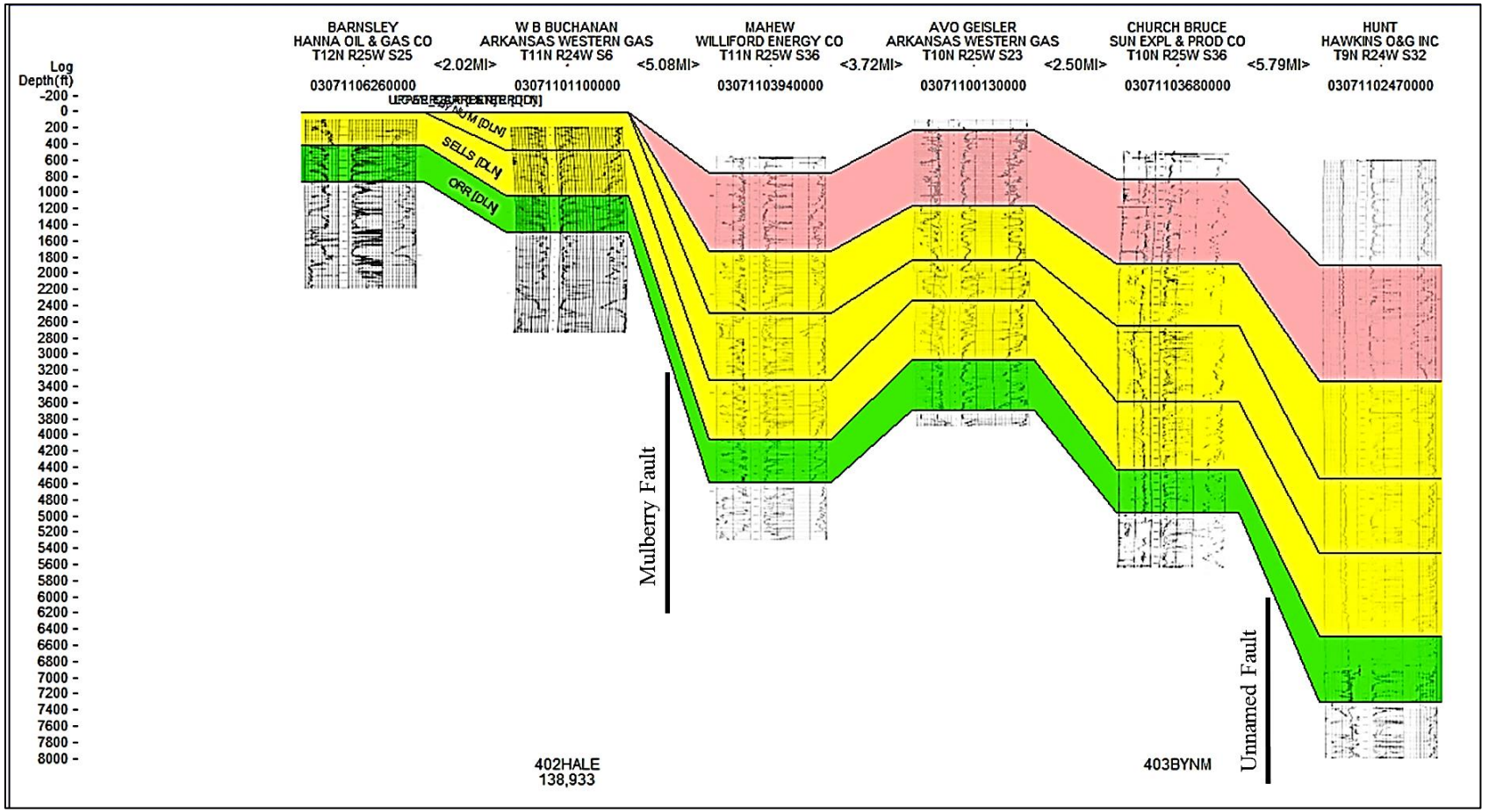
The middle Atoka experiences the greatest increase in thickness. As mentioned, the Bynum sandstone of the lower middle Atoka is exposed at the surface in T12N R25W S25. In T11N R24W S6, the Self sandstone appears to be the surface unit and the thickness of the middle Atoka increases to 1,000 feet indicating a displacement of 600 feet over this distance. Across the Mulberry fault, the middle Atoka increases to 2,400 feet thick at T11N R25W S36 for a displacement of 1,400 feet. Continuing southward to T10N R25W S23 there appears to be a minor structural high (fold) indicating compression that ceased after deposition of the Self sandstone, evidenced by a thicker Self at T11N R25W S36 and T10N R25W S36 and a thinner Self at T10N R25W S23. This feature is located at 2,000 feet below the present day surface and is seen in all structural cross sections. Total relief of this positive feature is about 400 feet. Continuing to T9N 24W S32, the middle Atoka thickens to 3,100 feet for a total of 2,700 feet of displacement across all faults.

1,000 feet of upper Atoka appears in T11N R25W S36 south of the Mulberry fault and is overlain by the Hartshorne sandstone to a depth of 800 feet below the surface. The Hartshorne overlies the upper Atoka everywhere in this cross section. Thickness is fairly constant until T9N

R24W S32, where it gains approximately 500 feet of thickness at a depth of 2,000 below the surface for a total displacement across all faults of about 1,500 feet.



A7- The cross section (E-E') is approximately 20 miles long north to south. The lower Atoka is about 400 feet thick in T12N R25W S25 and is overlain by 400 feet of the Bynum sandstone of the lower middle Atoka, which appears at the surface.



A8-E-E’ structural cross section.

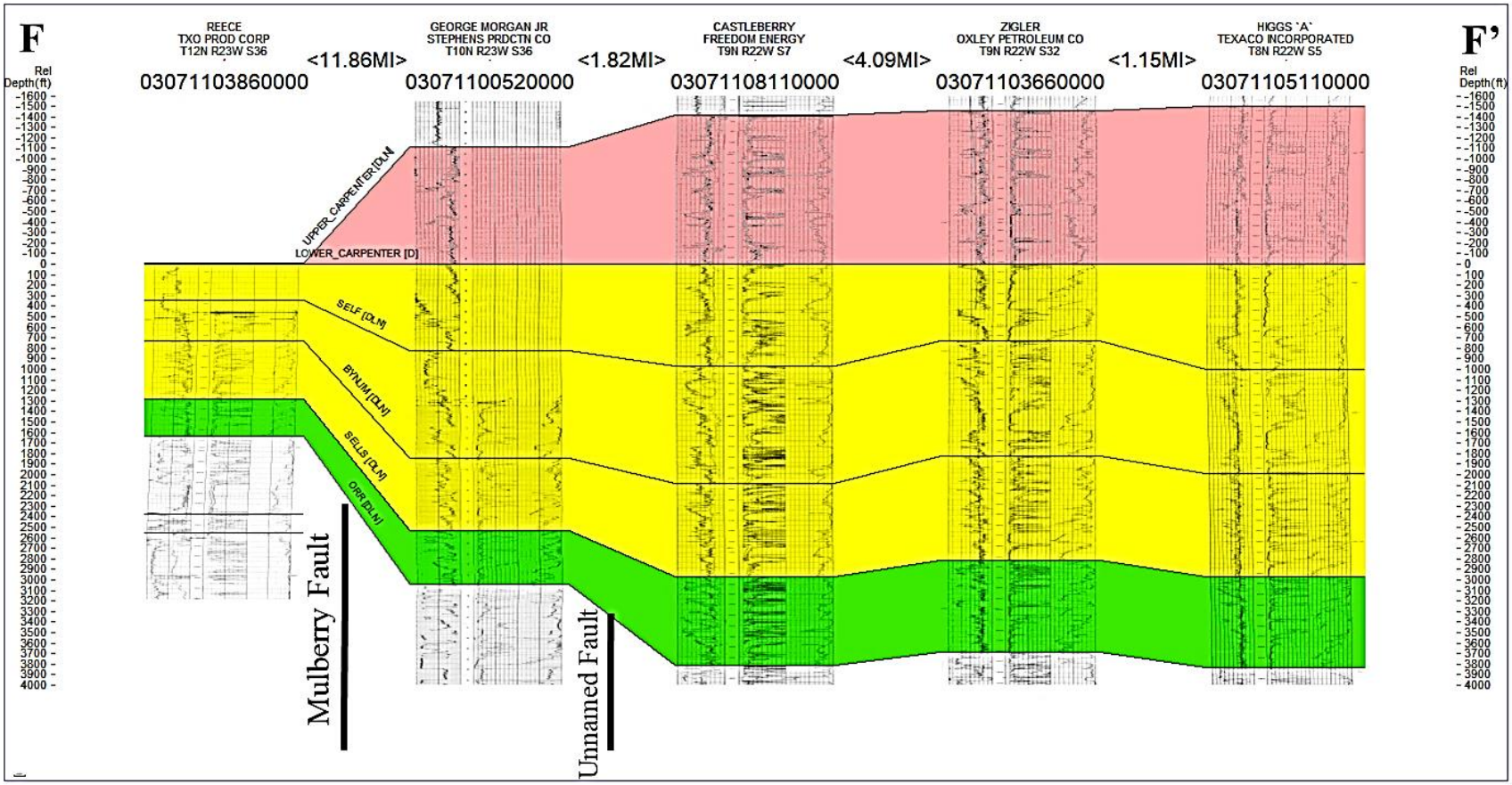
F-F’

This cross section (F-F’) (Figures 17 and 18) is about 20 miles long north to south. It reveals thickening of all sections of the Atoka towards the basin. The lower Atoka is about 300 feet thick in T12N R23W S36 and found 1,300 feet below the present day surface. It thickens across the Mulberry fault to about 500 feet in T10N R23W S36 indicating a fault displacement of 200 feet during deposition. Further south the lower Atoka thickens to 800 feet in T9N R22W S7 indicating a displacement of 300 feet across the unnamed fault for a total displacement of 500 feet. It maintains a relatively constant thickness to T8N R22W S5 with minor anticlinal folding at T9N R22W S32.

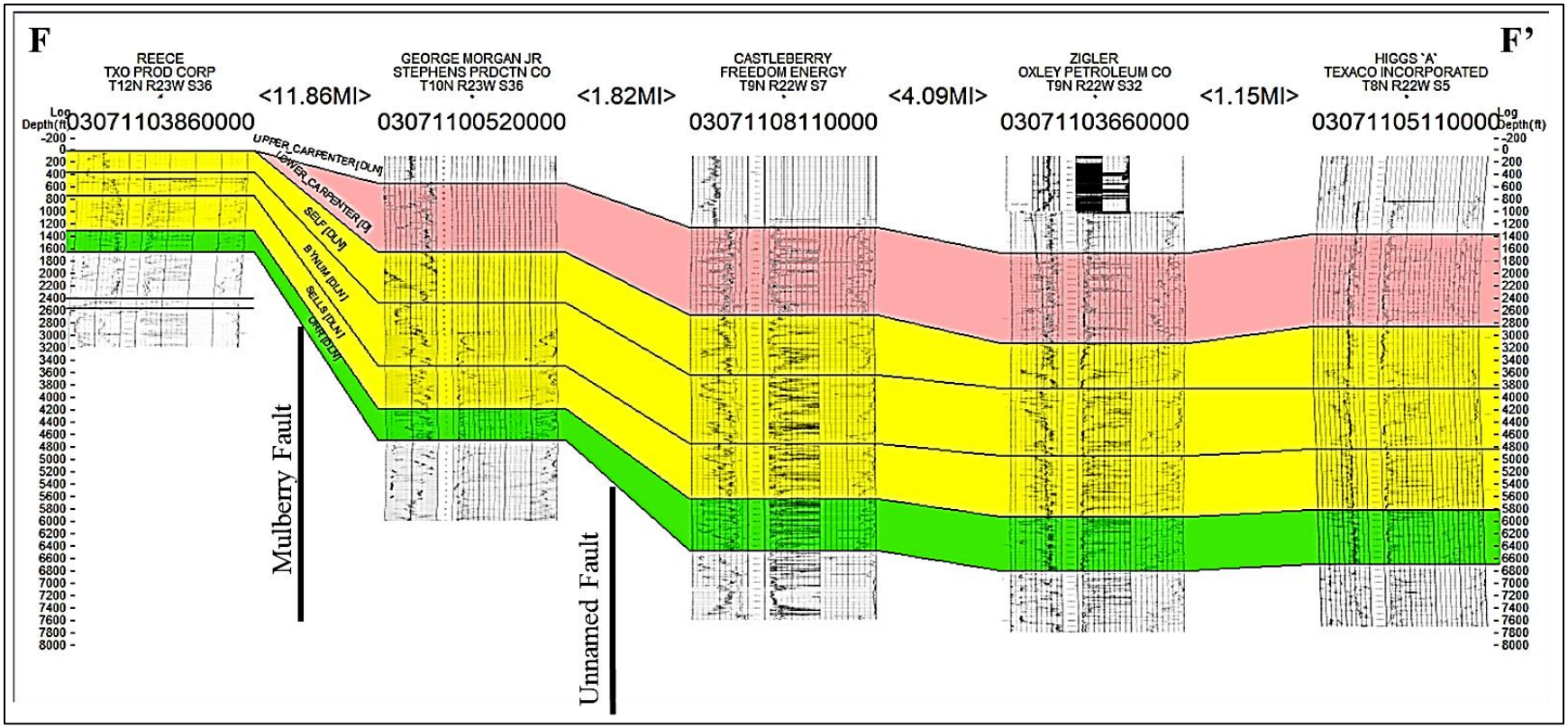
The middle Atoka is exposed at the surface in T12N R23W S36 and shows the Lower Carpenter sandstone to be the surface unit. The middle Atoka is approximately 1,300 feet thick there and across the Mulberry fault in T10N R23W S36 thickens to about 2,500 feet. This suggests the middle of the Mulberry fault trace experienced about 1,200 feet of displacement during the middle Atoka deposition and continued further across the unnamed fault to reach a thickness of 3,000 feet at T9N R22W S7. This is an additional 500 feet of displacement for a total of 1,700 feet during the middle Atoka. It maintains a relatively constant thickness to T8N R22W S5 with minor positive folding at T9N R22W S32.

Syndepositional faulting continued to the upper Atoka. Although the upper Atoka is not present in T12N R23W S36, it attains a thickness of about 1,100 feet south of the Mulberry fault at T10N R23W S36 with an additional 300 feet of thickness at T9N R22W S7 and is overlain by about 500 feet of Hartshorne. Another 100 feet of thickness is gained at T8N R22W S5 for a total displacement during the upper Atoka of about 1,500 feet.

Taken together, this cross section reveals a total displacement along the Mulberry fault of 2,500 feet, with total displacement across all faults reaching 3,700 feet.



A9-This cross section (F-F') is about 20 miles long north to south. It reveals thickening of all sections of the Atoka to the south towards the basin

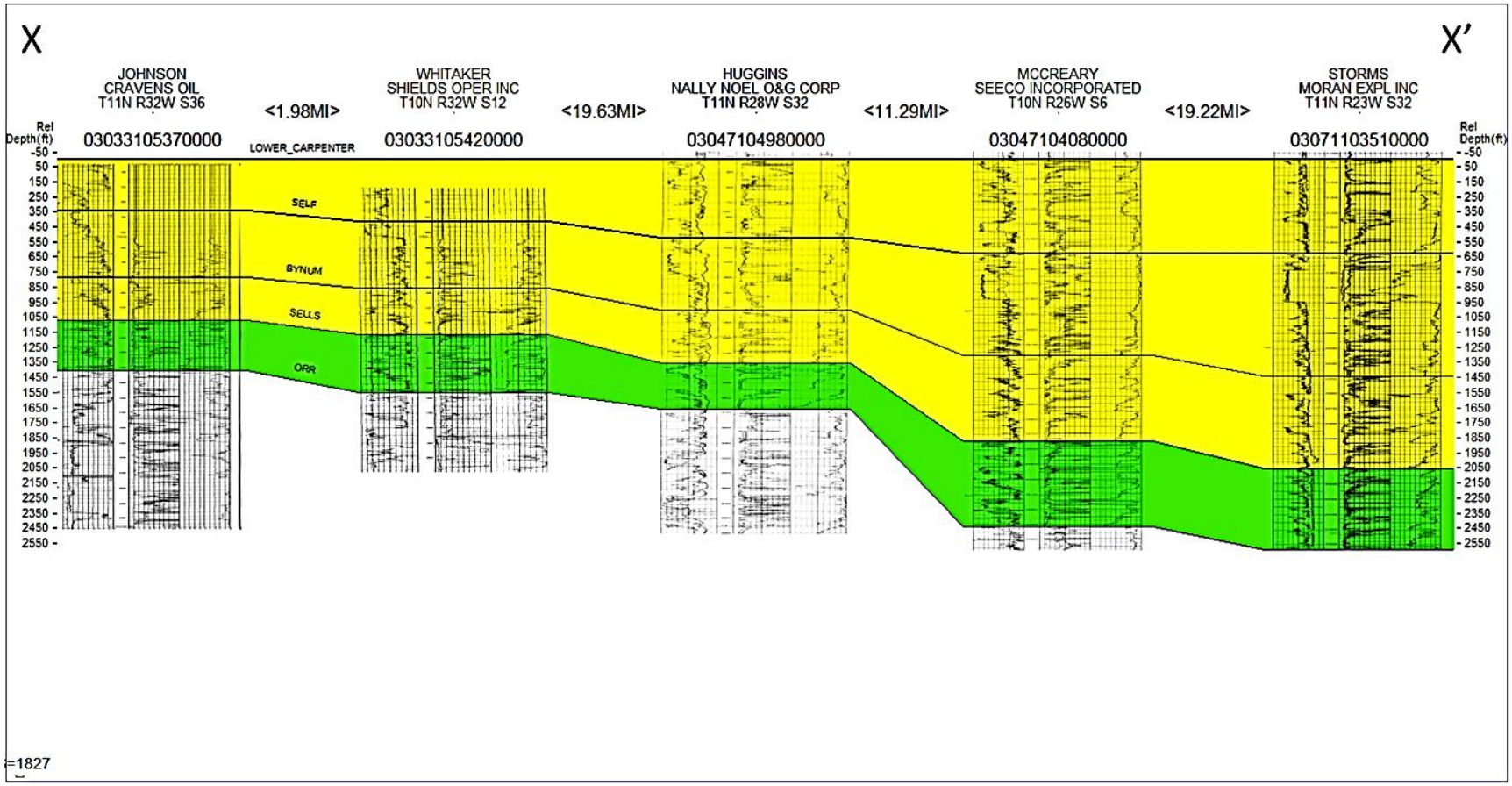


A10-F-F' structural cross section.

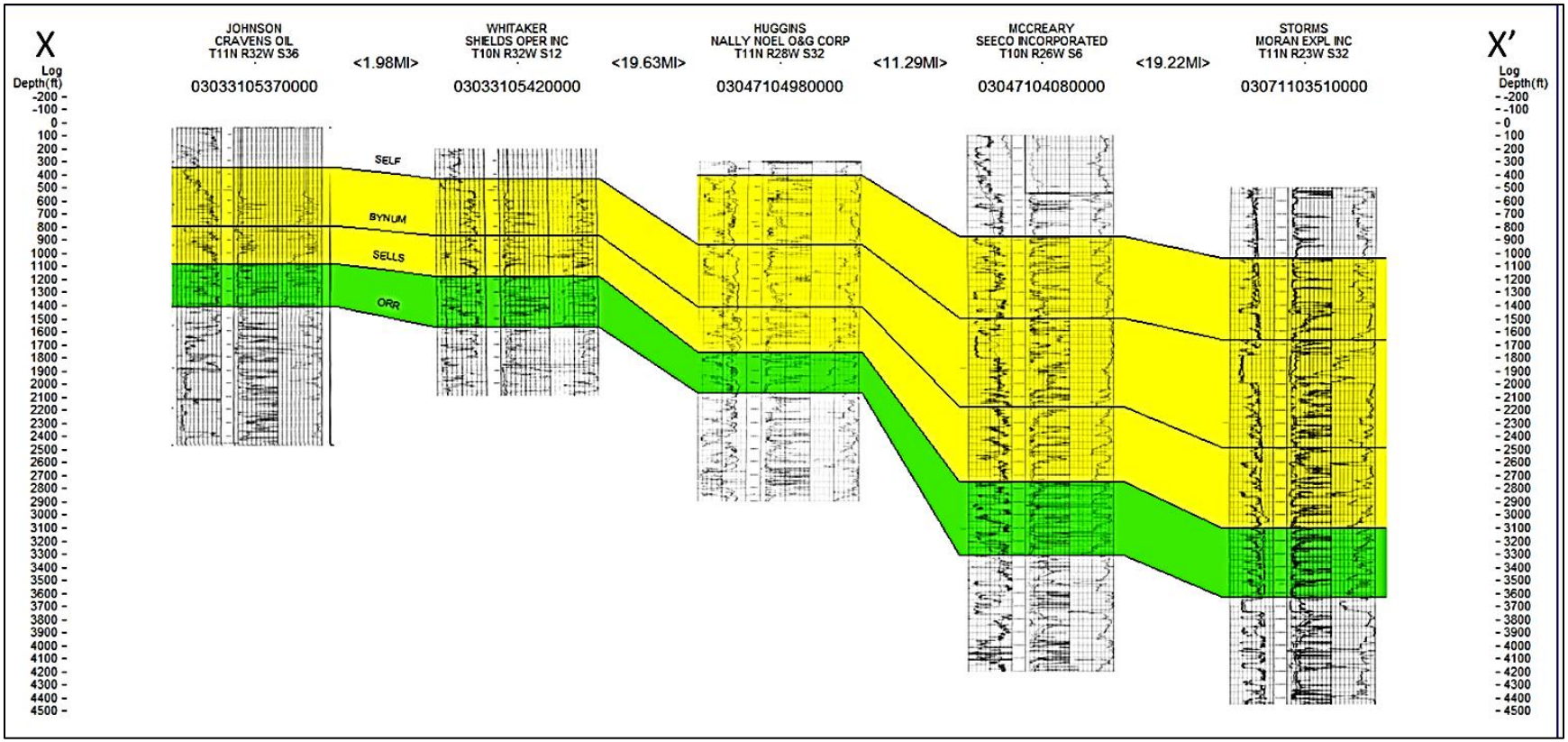
X-X’

Figures 19 and 20 depicts a west to east cross section (X-X’), and the northernmost. It is almost 55 miles long from T11N R32W S36 to T11N R23W S32. The cross section has middle Atoka exposed on the surface. It is approximately 1,000 feet thick and gradually thickens to the east. Between T11N R28W S32 and T10N R26W S6, the middle Atoka thickens from about 1,250 feet to over 2,000 feet. The Self sandstone turns from a progradational sequence to an aggradational sequence across the area. The lower Atoka also thickens from west to east from about 300 feet in the west to about 500 feet in the east. Sands of the unit become thinner and more frequent as the unit thickens.

The present day structure of the Atoka reveals that the middle Atoka is exposed in the west and buried up to 1,000 feet deep in the east. The lower Atoka is found at 1,150 feet below the surface to the west and over 3,000 feet deep in the east.



A11- X-X’ depicts a west to east cross section in the study, and the northernmost

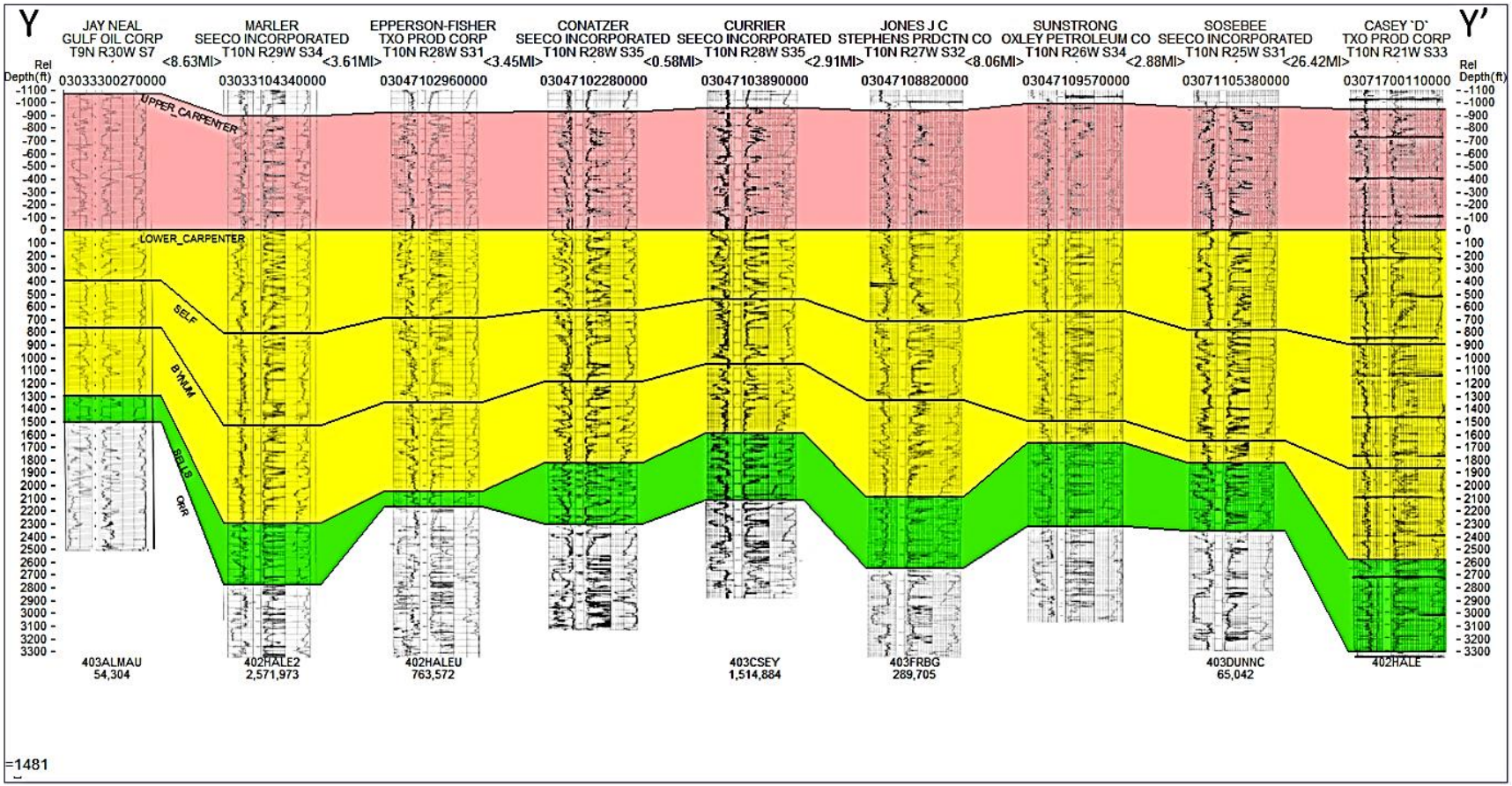


A12-X-X' structural cross section.

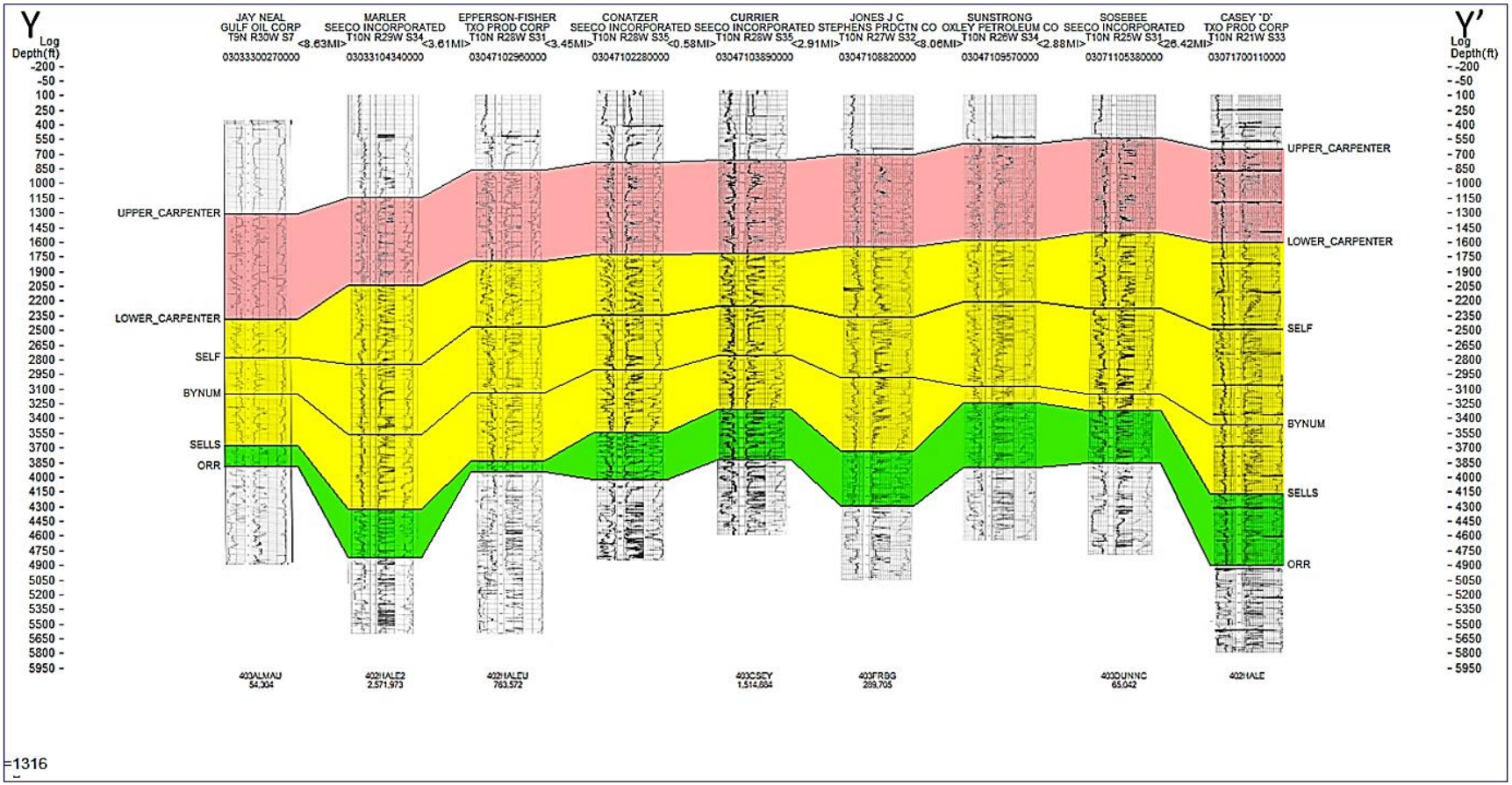
Y-Y’

Cross section (Y-Y’) convers a length of about 60 miles (Figures 21 and 22). It starts in T9N R30W S7 to the west and ends in T10N R21W S33 to the east. The lower Atoka has a thickness of 200 feet to the west and increases to 400 feet in T10N R29W S34 before thinning again to less than 150 feet in T10N R28W S35. These are both structural highs during the deposition of the lower Atoka. The thickness remains fairly consistent throughout the rest of the cross section with gradual thickening to the east.

The lower middle Atoka is about 500 feet thick to the west and thickens to 600 feet in the east. There is a structural high in T10N R26W S34 and T10N R25W S31 that decreases the thickness of the lower middle Atoka to less than 150 feet. This structural high changes to a structural low during the deposition of the middle of the middle Atoka. The thickness of that unit increase by about 400 feet during that time, ranging from 400 feet to the west and 1,000 feet to the east. The upper middle Atoka experiences a change in thickness from 400 feet in T9N R30W S7 to about 800 feet in T10N R29W S34. The overlying upper Atoka remains fairly consistent throughout with an average thickness of 1000 feet.



A13- Cross section (Y-Y') covers a length of about 60 miles. From T9N R30W S7 in the west and ends at T10N R21W S33 in the east.



A14-Present day structural cross section TVD.

APPENDIX 2

Curvature Maps

Curvature is a two-dimensional property of a curve and describes how bent a curve is at a particular point. Mathematically, curvature is simply the reciprocal of the radius of curvature (Figure 43).

$$K = \frac{d\omega}{dS} = \frac{2\pi}{2\pi R} = \frac{1}{R}$$

Figure 30-Mathematical formula for curvature. K=Curvature, dw=rate of change of angle, dS=arc length, R=radius of curvature.

The smaller the radius of curvature, the more bent the curve is, and the larger the curvature is. Curvature attributes can be used to express features of a surface. For instance, an anticline would be said to have positive curvature, where as a syncline would have negative. Further, the inflection point of a dipping plane between positive and negative curvature would necessarily have zero curvature, as would a horizontal plane (Figure 44).

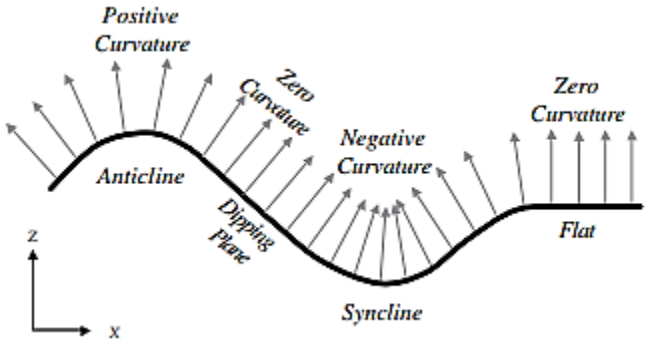
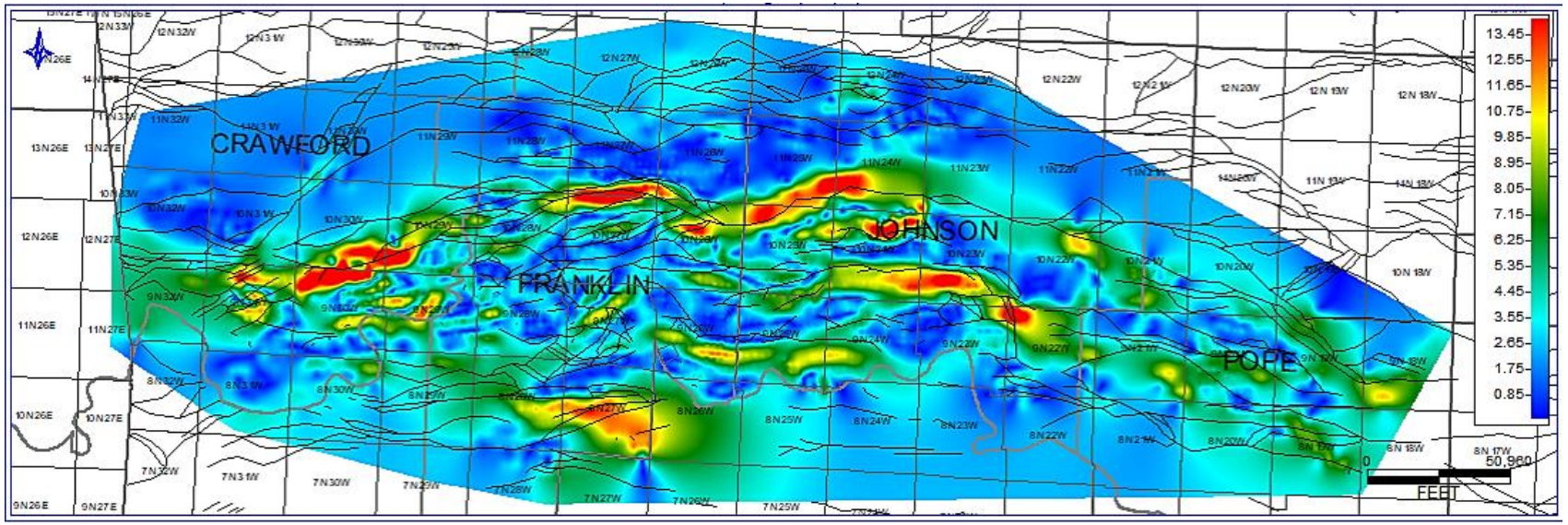


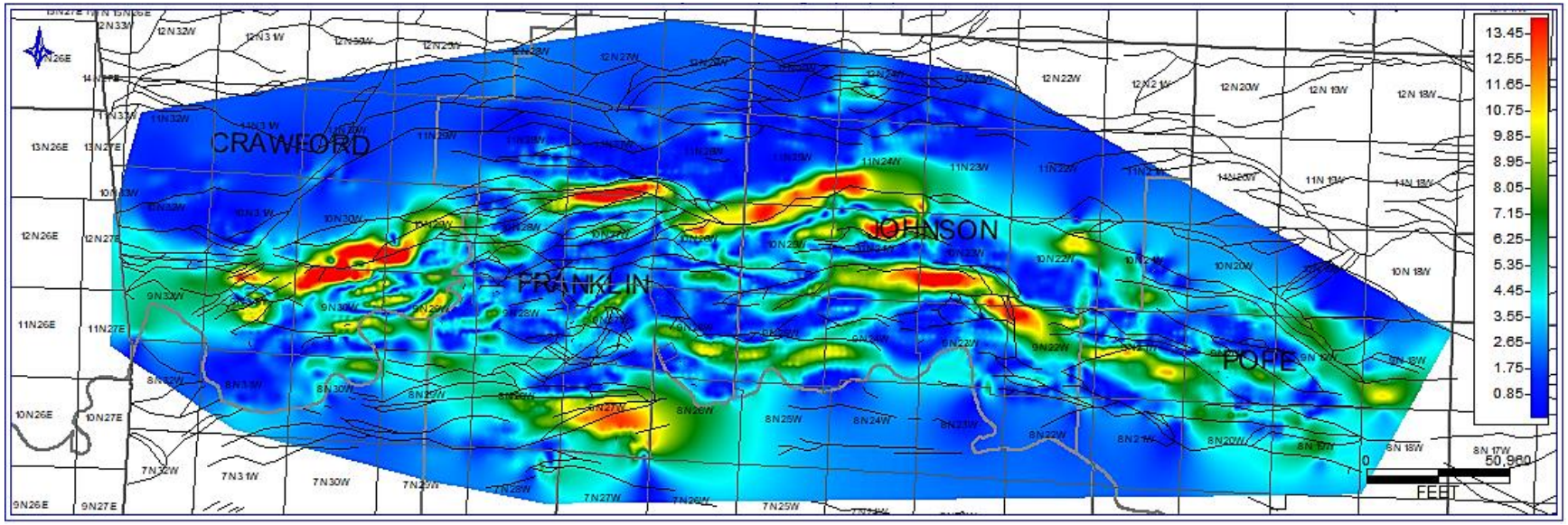
Figure 31-sign convention for curvature attributes. Topographic lows show negative curvature, high are positive, dipping is zero and flat is zero (from Roberts, 2001).

For this study, the dip angle attribute is used to show the areas of maximum dip. Maximum curvature will also be used because it is very effective at delimiting faults and fault geometries. The well spacing where these maps are used is very dense and therefore, a good amount of faith can be placed in their accuracy. Only the structure map of the Sells sandstone was used. Moreover, these maps mostly show the main structural features of the present day Arkoma Basin. Curvature maps were made for isopach surfaces, but they were not found very useful due to grid sizing issues, but could be topics for future study. For more information on the mathematics and theory behind curvature, as well as its application to geology, the author would refer you to Wood, 1996.

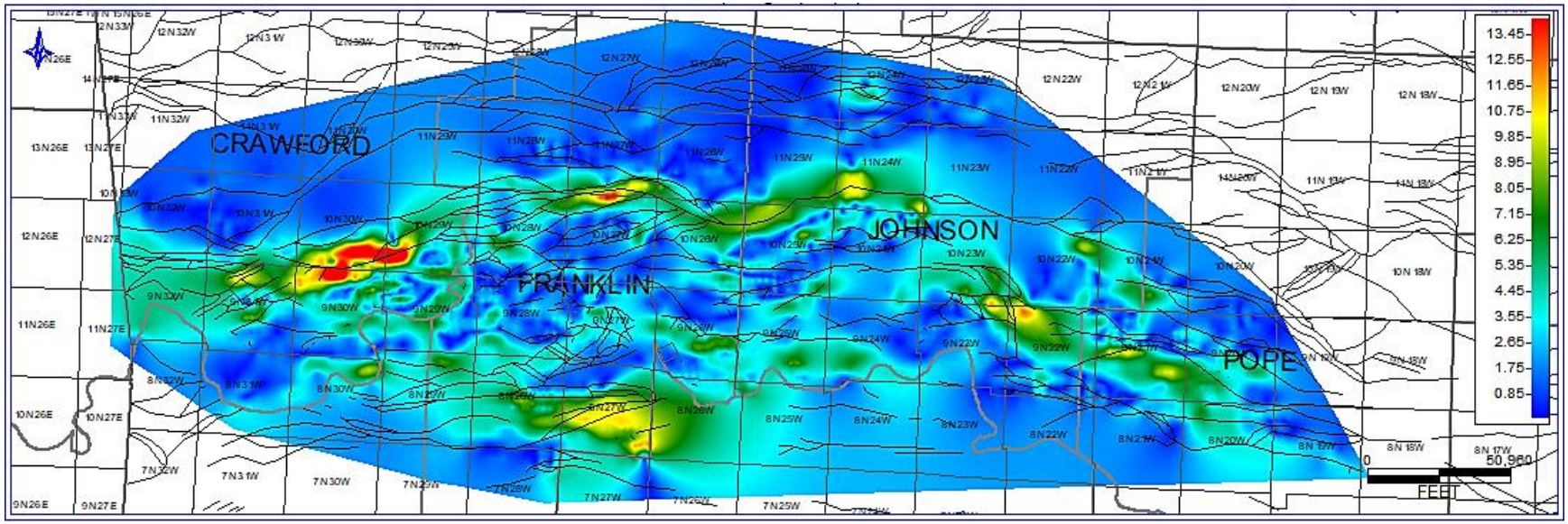
AA1 and AA2 are maps that are calculated using a least squares gridding method with a grid size of 100x100 for dip angle and 200x200 for max curvature.



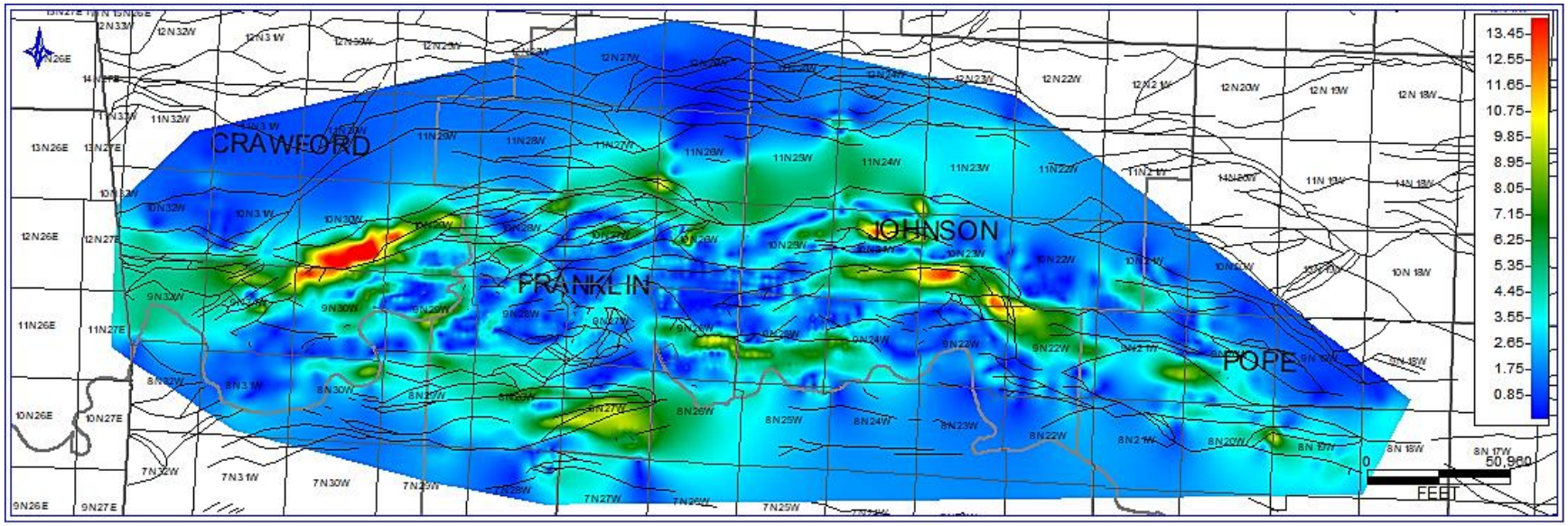
AA1-This dip angle attribute maps shows areas of high dip angle in hot colors and areas of low dip angle in cold colors. The top of the Sells sandstone structure map was used to make this map. From this map it is shown that the Mulberry fault reaches a maximum dip angle in different places along the trace of the fault. Near Alma is Crawford County and near Harmony in Johnson County the angle is in excess of 12 degrees. This map displays the varying dips across the trace of the Mulberry fault, as well as faults occuring further south.



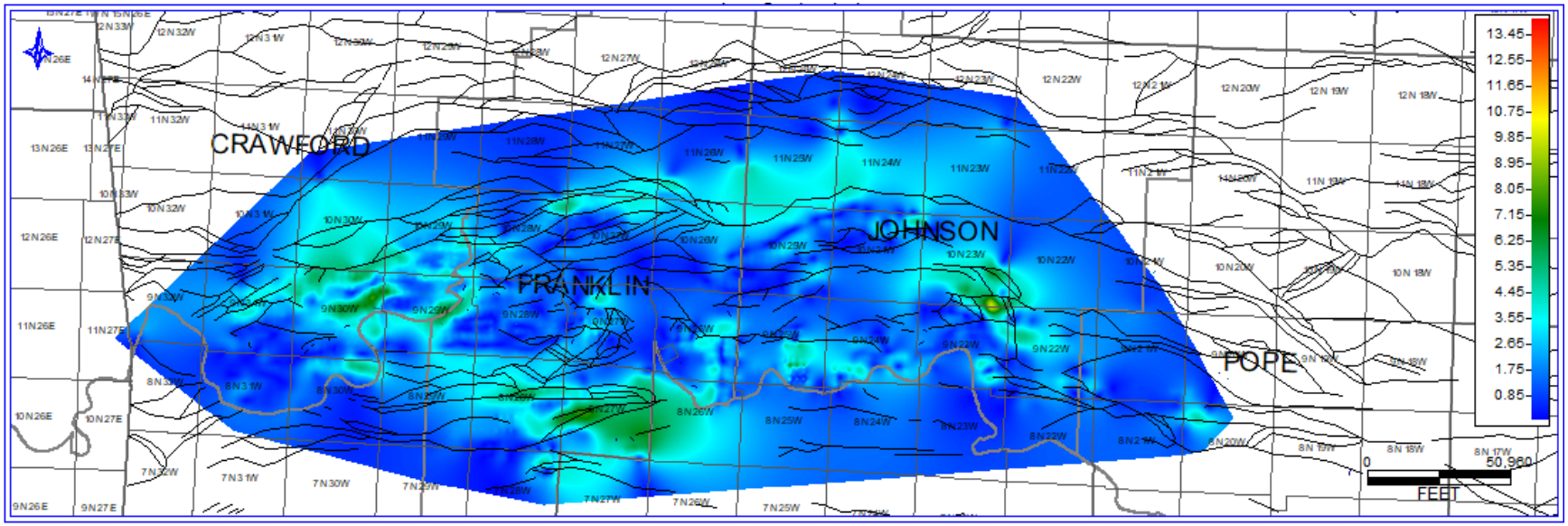
AA2-Dip angle attribute map of the Bynum sandstone (Lower Middle Atoka).



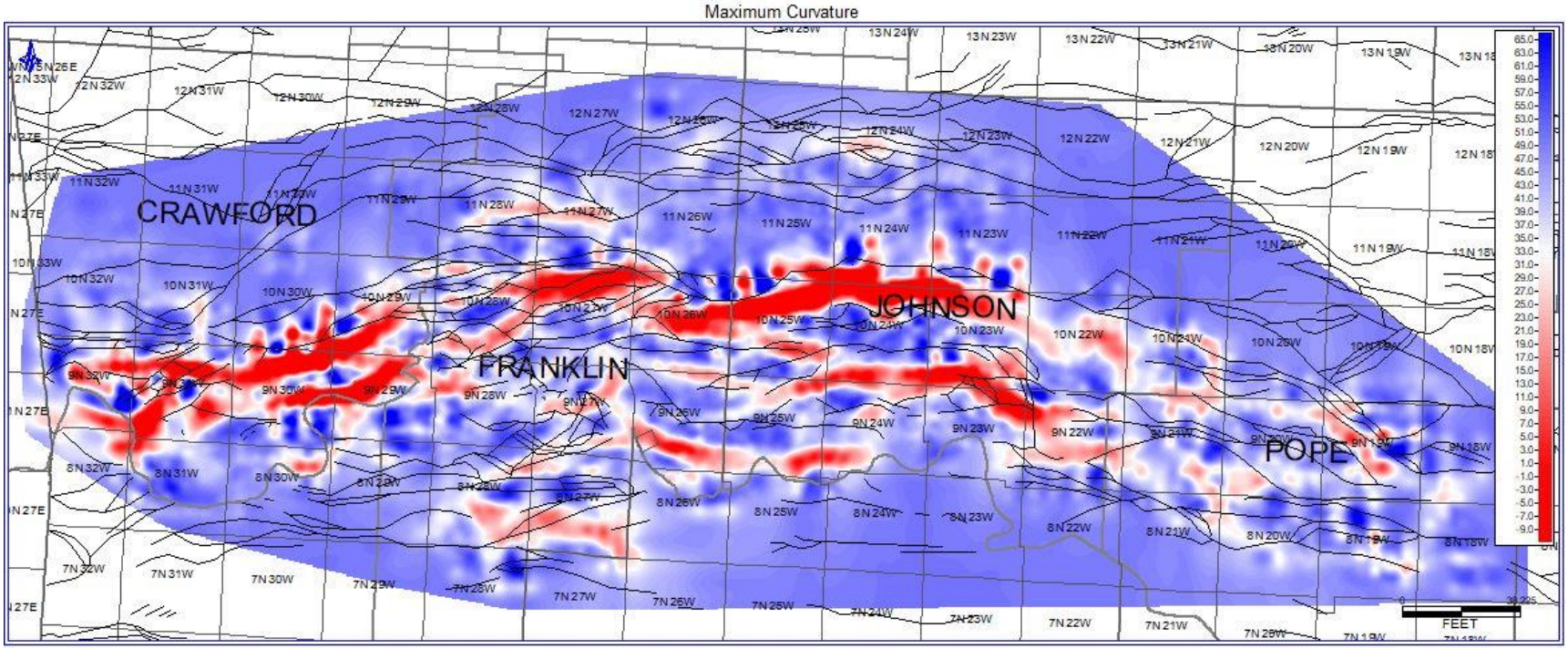
AA3-Dip angle attribute map of the Self sandstone (Middle Middle Atoka).



AA4-Dip angle attribute map of the Lower Carpenter sandstone (Upper Middle Atoka).



AA5-Dip angle attribute map of the Upper Carpenter sandstone (Upper Atoka).



AA6-Maximum curvature of the Sells Sandstone. This attribute is very good at delimiting faults and fault geometries.

APPENDIX 3

Well Name	Operator	Township	Range	Section	UWI (APINum)	CHATT	BOONE	ORR	PATTERSON	SELLS	BYNUM	SELF	L_CARP	U_CARP
NEIDECKER	AMBASSADOR OIL CORP	9N	31W	34	3033001960000			5306	5291	4752	4170	3489	2775	1498
TITSWORTH R C	GULF OIL CORP	9N	31W	24	3033002000000	6114	5984	5055	5023	4758	4169	3463	2732	1520
WOFFORD BOYCE	STEPHENS PRDCTN CO	9N	30W	26	3033002010000			4788	4745	4194	3651	3085	2411	1433
BRINEGAR	AMBASSADOR OIL CORP	9N	31W	25	3033002200000			5255	5223	4664	4065	3348	2662	1424
J F ALEXANDER	STEPHENS PRDCTN CO	9N	30W	33	3033002250000			5077	5049	4495	3836	3158	2423	1305
MCVEY UNIT	GULF OIL CORP	9N	30W	13	3033002380000			5355	5344	4994	4481	3546	2669	1426
H A RICH	GULF OIL CORP	9N	30W	11	3033002390000			6378	6310	5810	5127	4368	3593	2342
CURTIS WRIGHT	ARK LA GAS CO ET AL	9N	29W	5	3033002430000			5373	5307	4867	4162	3448	2697	1727
BYERS	GULF OIL CORP	9N	30W	15	3033002450000			5527	5470	4938	4563	4307	3626	2307
KING	HUBER J M CORP	9N	30W	1	3033097810000			6076	6014	5489	4825	4090	3328	2153
HENRY C GOSNELL	ARK LA GAS CO ET AL	9N	29W	11	3033100010000			4251	4181	3956	3680	3262	2408	1186
CLYDE L KING	DIAMOND SHMROCK CORP	9N	30W	1	3033100060000	6318	6158	5958	5944	5509	4830	4100	3325	2153
HOUSE HAROLD	STEPHENS PRDCTN CO	9N	31W	22	3033100070000	5639	5546	4637	4594	4058	3527	3027	2549	1359
BILLS ESTATE	STEPHENS PRDCTN CO	9N	30W	36	3033100090000			4928	4873	4251	3553	2887	2138	893
LOWE	GULF OIL CORP	9N	30W	2	3033100120000	3653	3507	3316	3295	3046	2776	2740	2624	1627
GLOMB N W	ARKANSAS WESTERN GAS	10N	29W	32	3033100140000			5153	5072	4580	3910	3246	2537	1614
REBA BOWLIN	ARKANSAS WESTERN GAS	10N	29W	28	3033100240000			5112	5026	4538	3830	3137	2340	1401
JAMES ARNOLD	STEPHENS PRDCTN CO	8N	30W	5	3033100260000	6861	6645	5637	5608	4956	4458	3704	2916	1509
CLYMA	ARKLA EXPL CO	9N	31W	16	3033100300000	4420	4286	3369	3326	2807	2448	2404	1999	835
E G COTTRELL ETUX	HANNA OIL & GAS CO	9N	30W	1	3033100310000			6020	5946	5447	4764	4026	3237	2090
GREIG ESTATE	STEPHENS PRDCTN CO	9N	30W	32	3033100340000	6157	6044	4948	4917	4298	3676	3183	2448	1145
JOHN GUNN	STEPHENS PRDCTN CO	9N	30W	31	3033100370000	6246	6146	5053	5034	4427	3825	3156	2441	1307
MULBERRY	CHEYENNE PET CO	10N	29W	29	3033100420000			3855	3774	3290	2790	2443	1780	1145
OLA MAE SMITH	TRIGG DRLG	9N	31W	12	3033100440000			4157	4110	3803	3088	2369	1655	1073
BRUCE	ARKANSAS WESTERN GAS	10N	30W	26	3033100450000	3830	3688	2803	2721	2283	1692	1164	645	
PRESTON	FERGUSON OIL & GAS I	9N	31W	10	3033100490000			4995	4952	4349	3614	2825	2054	877
DENDY	SEECO INCORPORATED	9N	29W	16	3033100520000			6332	6240	5623	4672	3711	2796	1562
MINISH	TEXAS O&G CORP	9N	30W	12	3033100540000	5755	5558	4787	4718	4213	3574	3135	2907	2069
GOINES	HADSON PETRO CORPOR	9N	31W	14	3033100550000			4968	4952	4385	3783	3061	2341	1246
CHITWOOD	SEECO INCORPORATED	9N	29W	4	3033100570000			5192	5116	4619	3905	3461	2741	1672
GOSNELL	TEXAS O&G CORP	9N	29W	11	3033100610000			4296	4203	3711	3257	2992	2448	1191
ALEXANDER	SEECO INCORPORATED	9N	29W	3	3033100660000			5168	5079	4530	3762	3400	2607	1528
COTTRELL	TEXAS O&G CORP	9N	30W	1	3033100670000			5843	5766	5421	4716	3968	3193	2049
SWARM	SEECO INCORPORATED	9N	29W	4	3033100680000			5066		4515	4198	3492	2617	1703
ALEXANDER	SEECO INCORPORATED	10N	29W	34	3033100730000			4552	4472	3966	3327	2749	1997	1252
BROWN	BROCK HYDROCRBNS INC	9N	31W	1	3033100770000	4492	4371	3742	3690	3156	2475	1830	1186	
STAR-GREIG UNIT	ANADARKO PROD CO	9N	31W	35	3033100810000			5198	5184	4625	4024	3327	2635	1378
HOUSE T J	BROCK HYDROCRBNS INC	10N	29W	35	3033100820000			4977	4877	4348	3545	2794	2020	990
MORSE	HAWKINS O&G INC	10N	29W	33	3033100840000			4787	4715	4222	3703	2934	2350	1438
RACKLEY	SEECO INCORPORATED	10N	30W	23	3033100860000	3789	3648	2758	2684	2249	1669	1177	645	
NEIDECKER UNIT	ANADARKO PROD CO	9N	31W	34	3033100900000	6657	6452	5470	5450	4880	4222	3528	2797	1507
OSMAN	SEECO INCORPORATED	10N	31W	28	3033100930000	2474	2362	1745	1718	1503	1034	652	138	
CAHILL	WHITMAR EXPL COMPANY	9N	31W	28	3033100940000			5047	4995	4465	3935	3271	2568	1346
STARBIRD	BROCK HYDROCRBNS INC	10N	31W	36	3033100960000	3777	3642	3047	3003	2525	1920	1350	746	
WEATHERL	BROCK HYDROCRBNS INC	10N	29W	35	3033100970000			4312	4213	3855	3463	2687	1920	931
MEADORS CLAUDE	GULF OIL CORP	9N	30W	14	3033100990000			6488	6409	5777	4857	3896	3019	1701
D BYARS	GULF OIL CORP	9N	30W	10	3033101000000	6957	6771	6261	6214	5713	5077	4415	3666	2348
THICKSTEN	GULF OIL CORP	9N	30W	11	3033101010000	6149	6095	5207	5147	4626	3970	3359	2989	2174

Well Name	Operator	Township	Range	Section	UWI (APINum)	CHATT	BOONE	ORR	PATTERSON	SELLS	BYNUM	SELF	L_CARP	U_CARP
TITSWORTH	GULF OIL CORP	9N	31W	24	3033101030000			5354	5322	4768	4151	3447	2710	1498
WHITLOCK	GULF OIL CORP	9N	30W	9	3033101050000			6183	6140	5706	5068	4292	3449	2220
CLETUS ADAMS	BROCK HYDROCRBNS INC	9N	30W	6	3033101110000	3812	3717	3148	3102	2590	2089	2079	1013	
BALLENTINE	MUELLER THOMAS C	9N	30W	6	3033101210000	4544	4439	3836	3793	3259	2905	2745	2368	1290
MISS EMMA	CARLYLE PET INC	9N	29W	16	3033101260000			4972	4899	4330	3789	3037	2468	1201
ALEXANDER `H`	TXO PROD CORP	10N	29W	27	3033101440000	5364	5310	4830	4739	4295	3578	2940	2151	1218
TWINING	REVERE CORP	9N	29W	2	3033101450000			5314	5222	4702	3939	3366	2542	1385
BURROUGH	TXO PROD CORP	10N	29W	26	3033101460000			4290	4186	3817	3375	2738	2002	1351
MEARNS	TXO PROD CORP	9N	32W	32	3033101470000	6528	6352	5726	5713	5240	4585	3895	3222	1871
LASTER	ARKOMA PROD OF CA	9N	30W	27	3033101480000			4717	4681	4116	3529	3128	2312	1343
LASTER	ARKOMA PROD OF CA	9N	30W	22	3033101510000			5184	5116	4611	4131	3625	2769	1462
RAY-III	HANNA OIL & GAS CO	10N	31W	18	3033101590000	2720	2571	2004	1976	1599	1150	752	305	
HUGGINS	HAWKINS O&G INC	10N	29W	23	3033101660000			4497	4389	3919	3188	2520	1803	909
NEILSON	CNG PRODUCING CO	10N	31W	32	3033101730000	2857	2743	2037	2015	1640	1167	794	251	
SCOTT	CNG PRODUCING CO	10N	32W	36	3033101740000	2820	2630	2340	2313	2002	1571	1071	668	
HOUSE	SEECO INCORPORATED	10N	29W	22	3033101770000			4456	4366	3954	3257	2672	1920	1037
NEWTON DON	STEPHENS PRDCTN CO	9N	30W	31	3033101820000			5025	5003	4393	3784	3131	2497	1268
MASON	MUELLER THOMAS C	10N	29W	19	3033101830000	3908	3774	2834	2757	2319	1745	1209	693	
NEAL	WILLIFORD ENERGY CO	9N	30W	7	3033101840000	5073	4906	4704	4691	4671	4082	3416	2654	1572
GREIG ESTATE	STEPHENS PRDCTN CO	9N	30W	32	3033101880000			4997	4967	4366	3732	3092	2540	1228
DENMAN	SAMSON RESOURCES CO	9N	30W	13	3033101940000			6374	6299	5669	4729	3748	2818	1545
ARNOLD	EXOK INCORPORATED	10N	30W	29	3033101970000	3832	3603	2871	2814	2364	1777	1260	672	
HOUSE HAROLD	STEPHENS PRDCTN CO	9N	31W	22	3033102070000	4517	4423	3432	3395	2868	2380	2183	2133	1113
MCMASTER J T	MUELLER THOMAS C	10N	32W	16	3033102090000		2416	1946	1919	1537	1084	718	278	
HUGGINS ELSIE	HAWKINS O&G INC	10N	29W	14	3033102110000	4415	4251	3503	3467	3250	2922	2401	1707	850
HARRISON CROFFORD	ENTERPRISE RES INC	10N	32W	20	3033102240000		2282	1856	1834	1457	993	602	199	
LASTER	ARKOMA PROD OF CA	9N	30W	22	3033102270000			5249	5186	4789	4105	3609	2746	1449
CRAIN ERP	ARKOMA PROD OF CA	9N	29W	6	3033102290000			5091	5021	4509	3810	3694	3035	1888
BIG RASCAL	ENTERPRISE RES INC	10N	32W	14	3033102350000		2292	1881	1846	1477	1007	667	213	
JACQUELINE	BARFIELD OIL CORP	10N	32W	13	3033102360000		2486	1946	1915	1561	1092	739	254	
THICKSTEN	ARKOMA PROD OF CA	9N	30W	3	3033102390000			6028	5978	5482	4797	4028	3259	2056
MORRIS UNIT	ANADARKO PET CORP	9N	31W	36	3033102620000	6019	5903	4868	4848	4251	3658	3255	2541	1320
STAR GREIG UNIT	TEXACO INCORPORATED	9N	31W	13	3033102670000			5095	5055	4533	3951	3285	2571	1450
PARKER SALLYE	ENTERPRISE RES INC	10N	31W	19	3033102740000		2554	1956	1925	1517	1070	691	257	
MORRIS UNIT	ANADARKO PET CORP	9N	31W	36	3033102910000			5067	5039	4445	3839	3178	2458	1333
NEIDECKER UNIT	ANADARKO PET CORP	9N	31W	34	3033102920000			5395	5382	4816	4189	3515	2784	1505
ALEXANDER	ARK LA GAS CO ET AL	9N	29W	8	3033102930000			4892	4815	4541	3747	2968	2612	1595
BRINEGAR UNIT	ANADARKO PET CORP	9N	31W	25	3033103090000	5840	5712	5067	5037	4466	3982	3314	2606	1381
HOLLEMAN EST	SEECO INCORPORATED	9N	29W	17	3033103110000			6508	6416	5771	4801	3810	2895	1617
BAILEY UNIT	ANADARKO PET CORP	9N	31W	26	3033103130000			5199	5171	4629	4005	3295	2575	1338
WHITESIDE	SAMSON RESOURCES CO	9N	31W	32	3033103280000			5298	5289	4736	4125	3443	2752	1451
HARRIS `C`	SOUTHWESTERN EXP INC	9N	30W	7	3033103390000			5739	5725	5248	4590	3801	2978	1548
PORTER JESS	ARKLA EXPL CO	9N	29W	7	3033103450000	6013	5907	5138	5069	4544	4158	3458	2598	1392
DAVIS	SEECO INCORPORATED	9N	30W	1	3033103480000			5754	5687	5227	4697	4021	3266	2090
EDWARDS	SAMSON RESOURCES CO	9N	31W	33	3033103490000	6213	6078	5147	5091	4540	3959	3304	2602	1387
BRINEGAR UNIT	ANADARKO PET CORP	9N	31W	25	3033103500000			4880	4856	4477	3939	3278	2575	1398
BRINEGAR UNIT	ANADARKO PET CORP	9N	31W	25	3033103510000			5231	5195	4609	3988	3414	2688	1450
THICKSTEN	SOUTHWESTERN ENRG PR	9N	30W	3	3033103540000			5790	5759	5264	4644	3940	3151	1993

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TITSWORTH	SAGELY FLOYD O&G CO	9N	31W	24	3033103560000			5007	4993	4445	3863	3396	2671	1520
LOWE	SANTA FE MIN INC	9N	30W	2	3033103680000			5741	5691	5264	4760	4108	3326	2056
NEILSON	HENRY PETROLEUM INC	10N	31W	32	3033103740000	2737	2600	2116	2097	1662	1190	741	242	
GREGORY ELMER	STEPHENS PRDCTN CO	9N	30W	35	3033103800000			4830	4779	4188	3547	2983	2228	1001
BIGGERSTAFF	ANADARKO PET CORP	9N	31W	27	3033103860000			4525	4493	4126	4057	3375	2639	1417
BILLS ESTATE	STEPHENS PRDCTN CO	9N	30W	36	3033103880000			4801	4749	4133	3464	2810	2062	833
HOUSE HAROLD	STEPHENS PRDCTN CO	9N	31W	22	3033103920000			4561	4537	4023	3505	3101	2623	1398
ADAMS LURA M	STEPHENS PRDCTN CO	8N	30W	12	3033103980000		6710	6269	6229	5540	4748	3953	3097	1597
MEADORS	SEECO INCORPORATED	9N	29W	5	3033104010000			5216	5144	4630	3916	3304	2851	1769
ALEXANDER MILDRED	STEPHENS PRDCTN CO	9N	30W	33	3033104020000	6218	6102	4994	4960	4393	3845	3153	2411	1118
KIRKSEY	SEECO INCORPORATED	9N	29W	15	3033104040000			4550	4461	3924	3536	3178	2634	1366
SALISBURY	HANNA OIL & GAS CO	9N	30W	10	3033104090000			6456	6398	5877	5182	4362	3526	2306
STOCKTON	SEECO INCORPORATED	10N	29W	32	3033104150000			5234	5153	4656	4096	3425	2684	1623
WRIGHT CURTIS	STEPHENS PRDCTN CO	9N	30W	36	3033104160000			4653	4614	4033	3427	2782	2075	1087
PAIGE	REVERE CORP	10N	29W	35	3033104170000			4049	3954	3504	3134	2570	1853	927
ALEXANDER	SEECO INCORPORATED	9N	29W	3	3033104210000			5110	5009	4515	3774	3443	2595	1470
ALEXANDER	SEAGULL MID-STH INC	9N	29W	8	3033104280000			5329	5248	4673	4235	3553	2656	1448
MARLER	SEECO INCORPORATED	10N	29W	34	3033104340000			4814	4742	4326	3567	2846	2038	1139
GILKER	SEECO INCORPORATED	10N	30W	5	3033104370000		2737	1989	1923	1543	1013	640	215	172
PAUL J	SEECO INCORPORATED	9N	29W	15	3033104460000			4788	4718	4168	3428	3235	2419	1324
MCVEY	SONAT EXPL INC	9N	30W	12	3033104490000			4984	4915	4407	3696	3252	2565	1329
BOWLIN REBA	SEAGULL MID-STH INC	9N	29W	9	3033104530000			5759	5701	5099	4369	3531	2622	1555
CLYDE	SEECO INCORPORATED	9N	29W	17	3033104560000			6295	6211	5594	4676	3685	2789	1555
ALVERSON	SEECO INCORPORATED	9N	29W	4	3033104570000			5210	5134	4582	3839	3409	2664	1612
CRAIN ERP	SEECO INCORPORATED	9N	29W	6	3033104610000	5910	5795	4984	4915	4338	4184	3866	3152	2021
BIGGERSTAFF	O G P OPERATING INC	9N	31W	27	3033104680000			5055	5035	4505	3944	3260	2541	1333
PHILLIPS `L`	SEECO INCORPORATED	10N	29W	25	3033104690000			3925	3857	3425	2745	2097	1699	973
HAMER GU	O G P OPERATING INC	9N	30W	21	3033104700000			6140	6088	5490	4626	3702	2859	1585
WOMACK	REVERE CORP	10N	31W	25	3033104750000		3596	2952	2924	2478	1896	1363	803	
PRICE	REVERE CORP	10N	31W	27	3033104760000		3279	2553	2515	2061	1530	1033	530	
PALMER	REVERE CORP	10N	32W	16	3033104870000	2558	2366	1881	1858	1477	1004	670	255	
OVERSTREET	REVERE CORP	10N	29W	25	3033104960000			3747	3629	3471	2749	2030	1943	950
GOSNELL	SONAT EXPL INC	9N	29W	14	3033105020000			4358	4269	3574	3014	2772	2472	1236
JAMES FAMILY	SEECO INCORPORATED	9N	29W	5	3033105130000			5372	5300	4802	4077	3362	2605	1706
L & W CATTLE CO	SEECO INCORPORATED	10N	29W	34	3033105150000			4412	4308	3819	3192	2557	1984	1266
HIGHTOWER	CRAVENS OIL	10N	32W	12	3033105210000		2319	1843	1819	1463	1006	678	205	
BROWN	YALE OIL ASSOC INC	10N	31W	31	3033105290000		2523	1950	1928	1496	1041	623	131	
JOHNSON	CRAVENS OIL	11N	32W	36	3033105370000	2110	1911	1410	1381	1079	794	346	8	
WHITAKER	SHIELDS OPER INC	10N	32W	12	3033105420000			1561	1533	1171	866	425	8	
PORTER	SEECO INCORPORATED	9N	29W	8	3033105550000	6532	6395	5506	5434	5020	4503	3523	2693	1496
BELLER	CRAVENS OIL	10N	31W	35	3033105600000	3678	3523	2906	2862	2432	1850	1333	789	
ALEXANDER	XTO ENERGY INC	9N	29W	9	3033105610000	5993	5843	5396	5325	4784	3945	3392	2587	1614
BYARS	SAGELY FLYD PROP LTD	9N	30W	10	3033105620000			6229	6177	5672	5114	4340	3584	2335
GRIFFIN	MUELLER T C OF CRWFR	10N	30W	30	3033105660000			2998	2939	2467	1884	1356	771	
MEADORS	XTO ENERGY INC	9N	29W	5	3033105710000	5841	5689	5322	5257	4759	4055	3535	2712	1687
ATWELL	XTO ENERGY INC	10N	32W	28	3033105730000	2644	2419	1973	1942	1566	1131	771	317	
RALPH	O G P OPERATING INC	9N	31W	35	3033105770000			5267	5235	4712	4157	3448	2706	1437
DENMAN	XTO ENERGY INC	9N	30W	13	3033105830000			5952	5869	5300	4478	3606	2771	1573

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BYARS	SAGELY FLYD PROP LTD	9N	30W	10	3033105960000			6131	6072	5719	5019	4268	3560	2282
HAMER	SAGELY FLYD PROP LTD	9N	30W	21	3033106060000			6300	6251	5591	4675	3719	2829	1551
ALEXANDER	ARK LA GAS CO ET AL	9N	29W	8	3033300010000	5853	5728	4881	4814	4547	3754	2997	2568	1623
JIMMY DOW GOOCH	STEPHENS PRDCTN CO	9N	30W	35	3033300030000			5006	4956	4349	3666	3000	2238	950
STAR GREIG	SKELLY OIL COMPANY	9N	31W	13	3033300040000			5119	5083	4565	3978	3253	2510	1355
WHITLOW NANCY	ARKANSAS WESTERN GAS	9N	29W	18	3033300100000		6290	6186	6175	5732	4790	3791	2864	1597
F E SHEARER	SHAMROCK O&G CORP	9N	30W	16	3033300130000			6100	6075	5620	4988	4198	3375	2113
GREIG ESTATE	STEPHENS PRDCTN CO	9N	31W	23	3033300180000			4609	4585	4070	3596	3289	2558	1342
MCVEY	GULF OIL CORP	9N	30W	12	3033300210000			5120	5051	4529	3821	3443	2600	1867
JAY NEAL	GULF OIL CORP	9N	30W	7	3033300270000	4562	4468	3888	3844	3675	3144	2777	2383	1311
HOWARD GENTRY	STEPHENS PRDCTN CO	8N	30W	19	3033300350000	7015	6962	5783	5771	5137	4488	3797	2982	1442
HILLARD HOMER	STEPHENS PRDCTN CO	8N	27W	1	3047000100000			5637	5545	4888	3939	3111	2210	614
T MCFERRAN UNIT	MOBIL OIL CORP	8N	28W	21	3047000130000			6874		6336	5362	4502	3444	1777
R C WOOD	ARK LA GAS CO ET AL	9N	27W	30	3047000170000			4710	4628	4081	3228	2546	2009	809
HINZMAN G	MOBIL OIL CORP	8N	28W	14	3047000240000			5523	5446	4918	3922	3199	3186	1492
R D WOODS	HUMBLE OIL & REFG CO	9N	26W	26	3047000260000			6014	5887	5235	4277	3339	2323	1104
P KING	GULF OIL CORP	8N	28W	20	3047000300000			7013	6962	6258	5206	4404	3402	1757
LAMBERT HEIRS	GOSE STEVE	8N	29W	36	3047000330000			7406	7367	6653	5742	4945	3881	2030
BRAND ESTATE	STEPHENS PRDCTN CO	8N	28W	26	3047000340000			7457	7406	6725	5609	4802	3801	
LONG C C	ARK LA GAS CO ET AL	9N	27W	4	3047000390000			3934	3809	3340	2603	1876	1180	65
ADAMS-KING	ARK LA GAS CO ET AL	9N	26W	33	3047000400000			5818	5718	5103	4309	3408	2368	810
AUSTIN R E	STEPHENS PRDCTN CO	8N	28W	25	3047000470000			7569		6832	5682	4847	3933	
C B FORD	ARK LA GAS CO ET AL	9N	27W	31	3047000500000			5096	5008	4435	3594	2883	2043	878
CLAYTON	ARK LA GAS CO ET AL	9N	27W	5	3047000520000	5533		4266	4166	3697	2963	2347	1623	660
KING SISTERS	MOBIL OIL CORP	8N	28W	28	3047000870000			7381		6653	5750	4884	3785	2202
KING	MOBIL OIL CORP	8N	28W	22	3047000890000			6895	6847	6146	5042	4324	3275	1632
C PILE	ATHLETIC MNING&SMLTG	8N	28W	13	3047000920000			5470		4926	3982	3396	3014	
SHANNON NEIL	ARK LA GAS CO ET AL	9N	29W	27	3047001110000	5301	5263	4215	4131	3579	2883	2249	1543	952
SMITH W E	ARK LA GAS CO ET AL	9N	28W	25	3047001940000			4643	4560	3988	3180	2501	1740	593
MCGEE	REPUBLIC NATR GAS	8N	28W	15	3047001980000			6043	5981	5338	4305	3510	2590	1294
DUNN	GULF OIL CORP	8N	28W	24	3047002190000			6893	6841	6146	5041	4176	3110	1501
BLACK ROBBIE UNIT	TENNECO OIL CO	10N	27W	7	3047080670000			4047	3896	3496	2817	2144	1502	644
SAM HARDING	ARK LA GAS CO ET AL	9N	27W	9	3047080710000	5017		3654	3535	3041	2381	1722	1231	609
BENTON STROPE	ARKANSAS WESTERN GAS	9N	26W	20	3047100010000			5668	5577	4930	3970	3090	2183	649
P WHITSON	ARKANSAS WESTERN GAS	10N	28W	13	3047100110000			3847	3719	3321	2639	1990	1337	495
LAIN D MORRIS	ARK LA GAS CO ET AL	9N	29W	24	3047100130000			4663	4580	4006	3279	2589	1856	808
DAVID PILE	ARKLA EXPL CO	8N	27W	19	3047100180000			7318	7261	6578	5442	4598	3503	2010
ARK ELECTRIC COOP	ARKANSAS WESTERN GAS	9N	26W	7	3047100240000			4245	4130	3642	2923	2147	1408	
FRED HARMON	TENNECO OIL CO	10N	28W	11	3047100280000	4250	4031	3452	3420	3021	2386	1805	1185	389
DENNING UNIT	ARKANSAS WESTERN GAS	9N	26W	22	3047100290000			4886	4758	4187	3288	2479	1794	
PETE ROBINSON	ARKANSAS WESTERN GAS	9N	26W	6	3047100440000			4577	4452	3911	3120	2316	1577	
W F PARKER	ARKANSAS WESTERN GAS	12N	26W	18	3047100460000		1343	393		15	10	6	1	
JACK PHILLIPS	ARKANSAS WESTERN GAS	9N	26W	28	3047100500000			5719	5613	4966	4158	3291	2340	771
J PAUL KING	HANNA OIL & GAS CO	8N	28W	20	3047100510000			6903		6163	5099	4305	3253	1706
CORDELL	DYCO PETROLEUM CORP	9N	28W	1	3047100520000			3977	3857	3379	2661	2043	1432	556
J GRAF	ARKANSAS WESTERN GAS	10N	28W	29	3047100560000			3937	3838	3377	2665	2242	1652	731
BROWN	HANNA OIL & GAS CO	8N	28W	11	3047100580000			5762		5057	4149	3391	2488	1037
HILL	N F C PETROLEUM CORP	8N	27W	6	3047100610000			5339		4649	3748	3035	2162	878

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ALLEN W KING	STEPHENS PRDCTN CO	8N	28W	29	3047100620000			7334	7278	6574	5471	4670	3610	1901
RAY MIESNER	HANNA OIL & GAS CO	8N	28W	31	3047100650000			7722	7680	6954	5808	5088	3949	2112
ANDREWS	ARKLA EXPL CO	9N	28W	23	3047100680000			4741	4645	4077	3347	2627	1913	791
RUE	ARKANSAS WESTERN GAS	11N	26W	31	3047100790000		3581	2776	2594	2260	1778	1148	599	1
LESSLEY	ARKANSAS WESTERN GAS	10N	28W	12	3047100840000			3899	3765	3390	2690	2041	1388	548
BOWMAN	ARKANSAS WESTERN GAS	10N	28W	1	3047100900000			2842	2720	2384	1754	1325	850	29
PILES	HANNA OIL & GAS CO	8N	28W	23	3047101080000			6712		6019	4932	4113	3080	1485
BECK	SEECO INCORPORATED	11N	27W	36	3047101100000			3544	3379	2961	2278	1592	970	
NICHOLS	SEECO INCORPORATED	11N	26W	32	3047101130000			2691	2512	2151	1579	997	440	
DOW OLIVER	SEECO INCORPORATED	10N	28W	29	3047101160000			4028	3937	3710	2984	2287	1591	660
STENGEL	OXLEY PETROLEUM CO	8N	27W	27	3047101180000			8723		8226	7357	6051	4714	
KIRKPATRICK	TENNECO OIL CO	9N	26W	28	3047101230000			5948	5850	5268	4338	3390	2406	814
WILLIAMS K	TEXAS O&G CORP	8N	28W	12	3047101250000			5646		4905	3965	3236	2334	958
CARTY-DAVIS	TEXAS O&G CORP	10N	28W	31	3047101320000			3927	3849	3679	3097	2440	1767	863
DICKERSON	STEPHENS PRDCTN CO	8N	27W	26	3047101330000			9005		8196	7381	6099	4738	2856
LESSLEY	SEECO INCORPORATED	10N	28W	12	3047101420000	4545	4362	3714	3599	3195	2540	1929	1287	474
CARTER	TENNECO OIL CO	8N	26W	4	3047101470000			5933		5143	4350	3494	2420	785
WOODROW JOHNS	STEPHENS PRDCTN CO	8N	27W	25	3047101560000			9730		8831	7878	6470	5044	3042
LEWIS	SEECO INCORPORATED	10N	28W	32	3047101650000			4017	3918	3578	3193	2531	1843	874
BECK	SEECO INCORPORATED	11N	26W	30	3047101670000		2990	1898	1719	1400	823	386	1	1
WILLIAMS	SEECO INCORPORATED	10N	28W	33	3047101730000			4087	4043	3915	3228	2569	1849	843
TAYLOR	SEECO INCORPORATED	11N	26W	18	3047101780000			2200	2031	1732	1137	685	41	
SMITH	HAWKINS O&G INC	10N	26W	31	3047101850000	5178	5106	4058	4003	3515	2761	1965	1249	
LOUGHRIDGE	STEPHENS PRDCTN CO	7N	29W	2	3047101910000		8707	7421	7385	6701	5655	4889	3788	1909
PRICE	ARKLA EXPL CO	7N	28W	11	3047101970000	9677	9401	7794	7763	7079	6474	5292	4081	1828
MING	SEECO INCORPORATED	10N	26W	30	3047101990000			3935	3823	3421	2727	1965	1379	
PALMER	SEECO INCORPORATED	10N	26W	36	3047102020000			4228	4079	3565	2932	2429	1746	670
MORSE	SEECO INCORPORATED	10N	28W	30	3047102110000			3915	3817	3352	2860	2220	1592	791
HOUSE	SEECO INCORPORATED	9N	29W	1	3047102130000			4331	4244	3742	3056	2397	1798	1091
MITCHELL	TENNECO OIL CO	8N	26W	3	3047102140000			6272		5562	4658	3753	2652	972
FORREST WILLIAMS	STEPHENS PRDCTN CO	10N	26W	33	3047102180000			4897	4749	4210	3373	2517	1773	
BALLARD	TXO PROD CORP	7N	28W	2	3047102230000	9662	9401	7824	7794	7074	6422	5190	3971	1870
COLVARD	SEECO INCORPORATED	10N	28W	24	3047102270000			3872	3753	3320	2627	2109	1426	545
CONATZER	SEECO INCORPORATED	10N	28W	35	3047102280000			4018	3944	3542	2903	2339	1719	783
DICKERSON	STEPHENS PRDCTN CO	8N	27W	26	3047102330000			9455		8520	7615	6254	4888	2958
KAY	HANNA OIL & GAS CO	7N	28W	1	3047102340000			7446	7411	6798	5803	5012	3848	1786
OKANE BESS	GULF OIL CORP	9N	26W	36	3047102350000			6290	6178	5516	4565	3631	2568	901
SUNSTRONG	OXLEY PETROLEUM CO	10N	26W	34	3047102420000			4787	4642	4144	3324	2480	1766	
HUNTSMAN	SEECO INCORPORATED	9N	26W	26	3047102480000			5889	5770	5151	4228	3294	2293	
ROSY FLYNN	ARKLA EXPL CO	7N	28W	12	3047102490000			7717	7691	6987	5997	5124	3746	1692
A E C	TXO PROD CORP	9N	26W	7	3047102500000			4395	4313	3723	2930	2141	1392	
BRASHEARS	TENNECO OIL CO	9N	26W	34	3047102520000			5898	5794	5183	4242	3368	2403	
PALMER /B/	TXO PROD CORP	10N	26W	36	3047102530000			4336	4307	3968	3133	2249	1483	
HOLT /C/	TXO PROD CORP	9N	26W	28	3047102540000			5514	5408	4809	4120	3339	2396	
WILSON	ARKOMA PROD OF CA	9N	26W	36	3047102620000			6352	6260	5595	4614	3672	2621	1317
RAS FISHER ESTATE	STEPHENS PRDCTN CO	9N	28W	5	3047102830000			4167	4072	3578	2831	2674	1971	883
HEMBREE H L UNIT	EXXON CORPORATION	9N	26W	25	3047102880000			5941	5831	5181	4259	3345	2333	
EPPERSON-FISHER	TXO PROD CORP	10N	28W	31	3047102960000	5155	5120	3949	3917	3835	3135	2469	1789	863

Well Name	Operator	Township	Range	Section	UWI (APINum)	CHATT	BOONE	ORR	PATTERSON	SELLS	BYNUM	SELF	L_CARP	U_CARP
CALAWAY	REVERE CORP	10N	29W	25	3047102970000			4065	3969	3647	3013	2393	1721	807
CALAWAY	REVERE CORP	10N	29W	25	3047103070000			3590	3486	3297	2633	1997	1697	805
HEMBREE H C UNIT	EXXON CORPORATION	9N	26W	25	3047103090000			5941	5831	5183	4265	3351	2333	
WHITE	HANNA OIL & GAS CO	8N	29W	3	3047103290000			5206	5149	4540	3796	3087	2306	1031
KIRBY	ARKOMA PROD OF CA	8N	27W	18	3047103350000			5297		4590	3613	3243	2264	
JORDAN	SEECO INCORPORATED	10N	28W	30	3047103370000			4441	4340	3872	3158	2462	1789	802
BARTON PAUL	ARKOMA PROD OF CA	9N	28W	21	3047103430000			3981	3917	3499	3009	2356	1595	567
GAGE	MUELLER THOMAS C	10N	27W	8	3047103450000			4134	3986	3597	2915	2229	1584	697
HILL E	ARKOMA PRODUCTION CO	9N	28W	32	3047103490000			4872	4789	4204	3445	2770	2010	841
SOSSAMON	MUELLER THOMAS C	10N	28W	25	3047103580000			3704	3617	3167	2658	2045	1367	545
MILLSAP	SEECO INCORPORATED	10N	28W	27	3047103590000			3919	3822	3347	2638	2054	1325	796
MC DONALD	ARKOMA PROD OF CA	9N	29W	35	3047103630000			4380	4305	3713	3000	2352	1608	
LAW A	ARKOMA PROD OF CA	8N	27W	9	3047103640000	6736	6569	5117	4998	4376	3806	3050	2109	
PILE	ARKOMA PROD OF CA	8N	27W	30	3047103650000			7547		6811	5645	4790	3940	2184
OLIVER DOW	MUELLER THOMAS C	9N	28W	3	3047103680000			3995	3878	3387	2962	2534	1791	779
JOHNSON T	ARKOMA PROD OF CA	9N	28W	20	3047103690000			3957	3837	3275	2621	2021	1462	883
KENNEY	SEECO INCORPORATED	10N	27W	3	3047103700000			4189	4054	3634	3009	2309	1630	702
HARDEN	ARKOMA PROD OF CA	9N	29W	24	3047103710000			4021	3931	3796	3399	2650	1918	870
SHANNON N	ARKOMA PROD OF CA	9N	29W	27	3047103870000	5305	5262	4215	4138	3579	2882	2257	1556	948
CURRIER	SEECO INCORPORATED	10N	28W	35	3047103890000			3824	3776	3304	2760	2252	1714	757
YOUNG	SEECO INCORPORATED	9N	26W	27	3047103910000			6031	5910	5298	4310	3368	2353	
STUBBLEFIELD	ARKOMA PROD OF CA	9N	29W	36	3047104010000			4417	4352	3777	3051	2389	1638	510
ALEXANDER	EXOK INCORPORATED	10N	29W	36	3047104020000			4505	4425	3949	3210	2541	1816	804
MCCREARY	SEECO INCORPORATED	10N	26W	6	3047104080000			3309	3127	2742	2171	1495	868	
BURCHAM	ARKOMA PROD OF CA	9N	28W	29	3047104090000			4141	4047	3481	2748	2087	1349	
AUSTIN R E	STEPHENS PRDCTN CO	8N	28W	25	3047104100000			7424		6694	5544	4717	3642	
WOFFORD	HAWKINS O&G INC	10N	26W	31	3047104110000			4286	4165	3643	2896	2114	1377	
SMITH	ARKOMA PROD OF CA	9N	28W	25	3047104140000			4400	4322	3888	3108	2437	1683	548
CARTWRIGHT RILEY	STEPHENS PRDCTN CO	9N	28W	4	3047104160000			4300	4205	3719	2942	2543	2013	932
WOODY	HANNA OIL & GAS CO	8N	28W	23	3047104190000			6676		5983	4896	4095	3074	1485
POSEY	ARKOMA PROD OF CA	9N	28W	31	3047104260000			4836	4771	4200	3453	2763	2003	867
LOG CABIN	HANNA OIL & GAS CO	8N	28W	11	3047104330000			5709		4992	4036	3277	2429	
MCFERRAN	ARKOMA PRODUCTION CO	8N	28W	21	3047104400000			7369		6575	5422	4567	3606	1909
KING SISTERS	ARKOMA PROD OF CA	8N	28W	28	3047104460000			7435		6694	5571	5039	3898	2088
BALLARD `B`	TXO PROD CORP	7N	28W	2	3047104510000			7753	7712	7043	6078	5374	4543	2435
MCFERRAN	ARKOMA PROD OF CA	8N	28W	21	3047104530000			6886		6360	5272	4448	3414	1760
HINZMAN	ARKOMA PROD OF CA	8N	28W	14	3047104540000			5613		4908	4591	4000	2966	1371
FISHER	ARKOMA PRODUCTION CO	9N	28W	5	3047104690000			4471	4383	3894	3117	2341	1603	551
GAGE	LYSANDER RESOURCES	10N	27W	10	3047104700000			4351	4236	3857	3172	2420	1726	803
CHAPPELL	MUELLER THOMAS C	10N	28W	26	3047104740000			3685	3588	3222	2648	2098	1452	558
NICHOLS JESSE	REVERE CORP	11N	26W	24	3047104810000			1891	1753	1413	848	462	327	0
VERNON	SEECO INCORPORATED	10N	27W	4	3047104830000			3841	3711	3340	2698	2108	1414	523
VERNON	SEECO INCORPORATED	10N	27W	4	3047104940000			4037	3885	3482	2816	2203	1501	618
FISHER	OXLEY PETROLEUM CO	8N	27W	36	3047104950000			10883		9968	9070	7778	6262	4174
HUGGINS	NALLY NOEL O&G CORP	11N	28W	32	3047104980000			2065	1935	1759	1408	931	407	
KING	ARKOMA PROD OF CA	8N	28W	1	3047105020000			5537		4808	3882	3171	2285	957
ECKLE-GOBER	MAXUS ENERGY CORP	10N	26W	25	3047105040000			3825	3684	3200	2461	1639	1202	
RUSSELL `J`	TXO PROD CORP	7N	29W	3	3047105050000			7293	7263	6574	5568	4797	3708	1819

Well Name	Operator	Township	Range	Section	UWI (APINum)	CHATT	BOONE	ORR	PATTERSON	SELLS	BYNUM	SELF	L_CARP	U_CARP
FISHER	ARKOMA PROD OF CA	9N	28W	5	3047105080000			4326	4218	3709	2940	2490	2053	949
KOERDT	SEECO INCORPORATED	9N	26W	12	3047105140000			4728	4622	4028	3194	2370	1969	882
FORD	ARKLA EXPL CO	9N	27W	29	3047105210000			5077	4966	4396	3505	2950	2091	899
KING ALLEN W	STEPHENS PRDCTN CO	8N	28W	29	3047105250000			7360	7299	6599	5486	4751	3677	1943
DEAN DEWEY	ARKOMA PROD OF CA	9N	28W	8	3047105280000			4748	4658	4139	3402	2573	1692	599
VEST ALVIN F	JMC EXPLORATION	8N	28W	15	3047105290000			6503		5738	4651	4191	3152	1598
MIKE`S DAIRY	HANNA OIL & GAS CO	8N	28W	11	3047105320000			5685		4992	4125	3367	2482	1066
REBA	N F C PETROLEUM CORP	8N	27W	5	3047105350000			5415	5326	4706	3861	3116	2229	984
ECKLE	SEECO INCORPORATED	10N	26W	36	3047105360000			3867	3730	3443	2758	2013	1732	695
CARTWRIGHT RILEY	STEPHENS PRDCTN CO	9N	28W	4	3047105450000			4316	4220	3742	2967	2496	2041	928
ROBINSON SAM	STEPHENS PRDCTN CO	9N	28W	24	3047105510000			4491	4398	3819	3272	2705	1950	814
HUGGINS THEA	WEISER BROWN OIL CO	10N	27W	2	3047105530000		4342	3548	3397	3212	2585	1894	1237	
GOBBLER	WEISER-BROWN OPER CO	11N	27W	1	3047105570000			1710		1303	737	435	1	
MILAM J L ESTATE	STEPHENS PRDCTN CO	9N	27W	28	3047105720000			5192	5070	4473	3624	2903	2040	898
TAYLOR FLB JETA	ARKLA EXPL CO	8N	28W	2	3047105780000			5098	5020	4484	3625	2922	2121	928
MAYNER	SEECO INCORPORATED	10N	26W	36	3047105810000			4383	4309	3980	3170	2301	1542	539
FORD ESTATE	ARKLA EXPL CO	9N	27W	29	3047105840000			4987	4873	4511	3771	2969	2091	903
KIRKPATRICK	EXXON CORPORATION	9N	26W	29	3047105860000			5826	5696	5076	4117	3215	2302	
WESTERN COAL	EXXON CORPORATION	9N	26W	23	3047105880000			4795	4666	4050	3149	2881	2501	
FREEMAN-SPRAGUE-DUN	STEPHENS PRDCTN CO	9N	27W	16	3047105910000	5631	5448	4557	4468	4110	3314	2598	1819	745
SOSEBEE	HANNA OIL & GAS CO	10N	26W	26	3047105930000			3961	3826	3326	2583	1779	1440	
MEAN MONKEY	SAGELY FLOYD O&G CO	10N	27W	10	3047105970000			4351	4196	3797	3118	2416	1680	748
MILAM J L	STEPHENS PRDCTN CO	9N	27W	28	3047105990000			4976	4860	4386	3710	2917	2040	863
MCCLELLAND	NALLY NOEL O&G CORP	10N	27W	3	3047106020000			4051	3893	3450	2769	2044	1388	
SUNSTRONG	MUELLER THOMAS C	10N	26W	35	3047106070000			3989	3859	3185	3003	2199	1732	763
MILLSAP UNIT	NADEL & GUSSMAN	10N	29W	24	3047106090000	4887	4831	3859	3776	3370	2714	2074	1364	477
HUGGINS `A`	TXO PROD CORP	10N	27W	11	3047106110000			4195	4100	3728	3051	2318	1620	697
HUGGINS THEA	SEECO INCORPORATED	10N	27W	2	3047106130000			3490	3324	3048	2518	1906	1272	
WARD	MUELLER THOMAS C	10N	27W	1	3047106170000			3379	3221	2785	2473	1836	1186	
WARD	MUELLER THOMAS C	10N	27W	1	3047106250000			3901	3740	3321	2649	1937	1247	
WOMACK ELDER J	SAGELY FLOYD O&G CO	10N	27W	10	3047106270000			4398	4296	3916	3203	2439	1726	808
DEWITT	HANNA OIL & GAS CO	8N	28W	23	3047106330000			6712		6031	4950	4113	3104	
MCGUIRE	HENRY PETROLEUM INC	11N	26W	13	3047106350000			1823	1675	1358	812	437	320	0
MCREARY	SEECO INCORPORATED	10N	26W	6	3047106430000			3223	3028	2641	1982	1305	698	
WOOD	ARKLA EXPL CO	9N	27W	30	3047106470000			4671	4584	4051	3242	2540	1760	790
WARD	MUELLER THOMAS C	10N	27W	1	3047106510000			3312	3136	2736	2328	1652	1050	
MELTON	SAGELY FLOYD O&G CO	10N	26W	24	3047106530000			4642	4558	4169	3477	2547	1916	896
SUNSTRONG	MUELLER THOMAS C	10N	26W	35	3047106550000			4019	3986	3663	3180	2394	1664	698
JACKSON HILLARD	SEECO INCORPORATED	9N	29W	12	3047106570000			4772	4766	4244	3542	3053	2254	1096
PENDERGRASS	HANNA OIL & GAS CO	8N	28W	23	3047106620000			5711		5505	4729	3904	2942	1383
BECKER	SEECO INCORPORATED	9N	26W	22	3047106650000			4850	4723	4152	3259	2599	2492	905
WOODS	J M C EXPL INC	9N	26W	26	3047106750000			6209	6086	5399	4402	3453	2424	
BARTLETT	MUELLER THOMAS C	9N	26W	1	3047106810000			5014	4880	4324	3458	2771	1791	
HILLARD HOMER	STEPHENS PRDCTN CO	9N	27W	25	3047106820000			5444		4717	3810	2949	2112	672
PILE	HANNA OIL & GAS CO	8N	28W	23	3047106900000			6670		5960	4854	4030	3014	1479
NICHOLS	SEECO INCORPORATED	10N	26W	18	3047107120000			3724	3555	3137	2470	1756	1145	
PRIMM PEARL	STEPHENS PRDCTN CO	8N	27W	4	3047107130000			5448	5345	4728	3858	3139	2257	984
WESTERN COAL	HOOVER-WILSON EXP&PR	9N	26W	23	3047107140000			4821	4718	4056	3509	3362	2551	1270

Well Name	Operator	Township	Range	Section	UWI (APINum)	CHATT	BOONE	ORR	PATTERSON	SELLS	BYNUM	SELF	L_CARP	U_CARP
TIMMERMAN	SEECO INCORPORATED	9N	26W	11	3047107160000			4783	4646	4098	3240	2424	1946	940
KING J PAUL	HANNA OIL & GAS CO	8N	28W	20	3047107260000			7119		6354	5284	4442	3414	1765
ROSS	SEECO INCORPORATED	9N	26W	21	3047107340000			4971	4856	4269	3564	2942	2045	581
BURCHAM HEIRS	JMC EXPLORATION	9N	27W	28	3047107380000			5028	4894	4370	3516	2705	2074	907
SMITHERMAN	SEECO INCORPORATED	10N	27W	13	3047107390000	4846	4646	3506	3360	2929	2260	1584	934	
HOGAN	SEECO INCORPORATED	9N	26W	24	3047107400000			4816	4720	4077	3846	3384	2386	1138
SOSSAMON	SEECO INCORPORATED	10N	28W	25	3047107420000			3728	3645	3163	2475	1797	1346	550
ROBISON	SEECO INCORPORATED	10N	27W	33	3047107520000			4018	3942	3490	2760	2125	1340	
HUGGINS	SEECO INCORPORATED	10N	27W	2	3047107530000			3905	3742	3368	2718	2008	1353	
HALL	SEECO INCORPORATED	9N	26W	20	3047107560000			5683	5586	4940	3973	3062	2162	
SCOTT	SEECO INCORPORATED	9N	29W	1	3047107570000			4750	4649	4142	3449	2909	2140	1240
GRAF	SEECO INCORPORATED	10N	28W	29	3047107750000			4396	4314	3799	3070	2363	1664	705
JONES J C	STEPHENS PRDCTN CO	10N	27W	32	3047107770000			4300	4198	3751	2979	2318	1638	699
CAGLE	SEECO INCORPORATED	10N	27W	5	3047107790000			4142	3997	3598	2898	2221	1519	619
DENNING	SEECO INCORPORATED	9N	26W	22	3047107830000			4917	4793	4214	3716	2835	1914	572
MOON	SEECO INCORPORATED	10N	28W	28	3047107880000			4220	4104	3645	2946	2435	1627	650
LACHOWSKY	SEECO INCORPORATED	10N	26W	36	3047107990000			3876	3719	3329	2714	2087	1788	721
SAM	SEECO INCORPORATED	10N	28W	20	3047108090000			3021	2925	2497	1826	1252	1033	189
HUTCHENS	SEECO INCORPORATED	10N	28W	12	3047108100000			3749	3649	3277	2622	2001	1359	495
FLOYD A D	SEECO INCORPORATED	10N	27W	2	3047108110000			3996	3833	3424	2726	2015	1332	
WOOD	SEAGULL MID-STH INC	9N	27W	30	3047108140000			4775	4706	4148	3292	2588	2032	826
LOG CABIN	HANNA OIL & GAS CO	8N	28W	11	3047108220000			5649		4920	4018	3265	2381	1031
BRASHEARS	HOOVER-WILSON EXP&PR	9N	26W	34	3047108280000			5877	5778	5148	4214	3457	2424	827
SHELDON	HOOVER-WILSON EXP&PR	9N	27W	2	3047108380000			4015	3883	3340	2578	1818	1316	
KIRKPATRICK	SONAT EXPL INC	9N	26W	28	3047108420000			6015	5908	5298	4378	3441	2424	
BURCHAM HEIRS	JMC EXPLORATION	9N	27W	21	3047108470000			5022	4892	4295	3436	2637	1783	645
BRASHEARS	HOOVER-WILSON EXP&PR	8N	26W	3	3047108560000			6140		5380	4515	3650	2545	892
HARGER ALICE	SEECO INCORPORATED	9N	26W	27	3047108660000			6078	5967	5347	4362	3413	2396	
MADGE	SEECO INCORPORATED	10N	26W	18	3047108680000			3631	3464	3049	2358	1662	1236	
JONES J C	STEPHENS PRDCTN CO	10N	27W	31	3047108720000			4017	3891	3519	2786	2073	1427	
TAYLOR	REVERE CORP	11N	26W	31	3047108760000			1602	1450	1185	1162	866	274	1
JONES J C	STEPHENS PRDCTN CO	10N	27W	32	3047108820000			4289	4197	3730	2976	2362	1648	707
RUSSELL `J`	SONAT EXPL INC	7N	29W	3	3047108920000			7339	7314	6614	5593	4848	3669	1841
SOSSAMON	SEECO INCORPORATED	10N	28W	25	3047108950000			3684	3553	3130	2614	2031	1388	519
PYRON	HOOVER-WILSON EXP&PR	9N	26W	16	3047109030000			4575	4443	3861	3198	2457	1949	911
WRIGHT	SEAGULL MID-STH INC	8N	27W	29	3047109060000			7620		6847	6197	5319	4121	2314
ANDREWS	HANNA OIL & GAS CO	9N	28W	23	3047109070000			4375	4298	3928	3345	2685	1999	865
CASEY	SEAGULL MID-STH INC	9N	28W	22	3047109100000			4719	4644	4051	3297	2614	1865	795
LOCK & DAM	SEECO INCORPORATED	9N	29W	12	3047109150000			4438	4348	3958	3241	2569	1812	774
COY	SEECO INCORPORATED	9N	26W	33	3047109170000			5641	5544	4938	3984	3198	2453	
O NEAL	SEAGULL MID-STH INC	8N	27W	17	3047109290000			5682		4960	4448	3621	2692	1211
HOUSE	SEECO INCORPORATED	9N	29W	1	3047109330000			4334	4244	3747	3055	2397	1798	1091
HAMM	SEAGULL MID-STH INC	9N	29W	25	3047109360000	5299	5279	4066	4000	3440	2728	2352	2142	932
BLANSCET	SEAGULL MID-STH INC	9N	27W	22	3047109370000	6076	6054	4897	4599	4137	3308	2568	1751	
COLLINS	SEECO INCORPORATED	10N	27W	15	3047109440000			4166	3964	3358	2789	2134	1489	622
SUNSTRONG	OXLEY PETROLEUM CO	10N	26W	34	3047109570000			3897	3744	3238	3069	2210	1576	587
RALPH	SEECO INCORPORATED	10N	27W	31	3047109580000			4125	4018	3556	2842	2216	1584	
RODNEY	SEECO INCORPORATED	10N	27W	30	3047109700000			3796	3664	3220	2509	1820	1340	434

Well Name	Operator	Township	Range	Section	UWI (APINum)	CHATT	BOONE	ORR	PATTERSON	SELLS	BYNUM	SELF	L_CARP	U_CARP
CLAYTON	SEAGULL MID-STH INC	9N	27W	5	3047109750000			4400	4281	3781	3048	2356	1619	673
SAWITSKY	SEECO INCORPORATED	9N	26W	26	3047109810000			6112	5989	5328	4344	3396	2632	797
WRIGHT	SEAGULL MID-STH INC	8N	27W	20	3047109850000			7170		6448	5348	4470	3396	
PARKS C	SONAT EXPL INC	8N	26W	12	3047109860000			6281		5495	4885	4319	3138	1230
WALKANA	SEECO INCORPORATED	10N	28W	24	3047109880000			3878	3765	3391	2717	2052	1405	532
ROBINSON SAM	STEPHENS PRDCTN CO	9N	28W	24	3047109990000			4396	4296	3749	3445	2705	1950	840
FRANCIA	SEECO INCORPORATED	10N	28W	29	3047110140000			3872	3773	3342	2627	1970	1518	683
GRIFFIN	SEECO INCORPORATED	9N	26W	21	3047110150000			5577	5460	4826	3875	2942	2039	723
BRASHEARS	AMOCO PROD CO	9N	26W	33	3047110180000			5739	5638	5024	4073	3226	2410	
ADAMS	SEAGULL MID-STH INC	9N	28W	16	3047110280000			4206	4113	3793	3063	2400	1651	856
HUNTER	STEPHENS PRDCTN CO	9N	27W	19	3047110330000			4155	4062	3513	2901	2337	1604	487
FORD	SEAGULL MID-STH INC	9N	27W	31	3047110350000			4993	4901	4318	3443	2850	2024	829
SHELDON `A`	AMOCO PROD CO	9N	27W	3	3047110380000			3541	3423	3019	2348	1645	949	
FRANKLIN	SEAGULL MID-STH INC	9N	28W	26	3047110460000			4482	4391	3825	3077	2532	1979	881
MERSHON	SEECO INCORPORATED	9N	26W	27	3047110480000			5178	5077	4854	4352	3421	2417	803
TAYLOR JETTA	STEPHENS PRDCTN CO	9N	28W	34	3047110530000			4586	4511	3923	3125	2449	1700	550
CASALMAN	STEPHENS PRDCTN CO	9N	28W	35	3047110570000			4556	4470	3904	3101	2414	1683	560
REBSAMEN	SEAGULL MID-STH INC	9N	29W	34	3047110660000			4500		3838	3110	2455	1742	587
MCGEE	NATIONAL ENRGY GRP	8N	28W	15	3047110710000			5771		5177	4388	3546	3189	1532
YOUNG `K`	SONAT EXPL INC	9N	26W	35	3047110740000			6361	6243	5582	4592	3642	2585	
KING	SEAGULL MID-STH INC	8N	28W	1	3047110760000			5001		4457	3601	2995	2175	914
WESTERN COAL	FREEDOM ENERGY	9N	26W	23	3047110850000			4803	4677	4074	3190	2954	2501	
DUNN	SONAT EXPL INC	8N	28W	24	3047111000000			6821		6107	5021	4194	3156	
FLANAGAN	SONAT EXPL INC	8N	28W	27	3047111030000			7435		6694	5577	4980	3883	
FORD ESTATE	STEPHENS PRDCTN CO	9N	27W	29	3047111100000			5010		4297	3793	2977	2095	896
MCFERRON	SEAGULL ENRGY E&P IN	8N	28W	21	3047111310000			7154		6402	5314	4490	3462	1825
CORP	SEECO INCORPORATED	8N	26W	3	3047111340000			6237		5468	4479	3637	2603	923
DUNN	SPRING RESOURCES INC	8N	28W	24	3047111560000			6756		6034	4949	4092	3062	1443
HURST	SEECO INCORPORATED	9N	26W	24	3047111670000			4833	4732	4072	3764	3131	2299	714
TAYLOR JETA FLB	CROSS TIMBERS OPR CO	8N	28W	2	3047111690000			5254	5183	4561	3911	3171	2307	997
KING	CROSS TIMBERS OPR CO	8N	28W	1	3047111710000			5023		4457	3597	2955	2140	887
LAW AUSTIN	CROSS TIMBERS OPR CO	8N	27W	9	3047111880000	6707	6569	5139	5015	4398	3929	3042	2143	
LOG CABIN	HANNA OIL & GAS CO	8N	28W	11	3047111920000			5792		5033	4090	3307	2447	1055
CURRIER	BOWMAN&CAINS EXPL LL	9N	28W	2	3047111950000			4303	4208	3383	2893	2219	1487	689
TANKERSLEY	XTO ENERGY INC	9N	29W	26	3047112030000			4170	4094	3505	2823	2417	2080	937
WILLIAMS K	XTO ENERGY INC	8N	28W	12	3047112070000			5709		4986	4036	3301	2375	971
MATTHEWS LILA	XTO ENERGY INC	8N	27W	19	3047112110000			6778		6049	4963	4121	3091	
HAMM	XTO ENERGY INC	9N	29W	25	3047112170000		4753	4079	4002	3432	2728	2360	2102	933
HILLARD HOMER	STEPHENS PRDCTN CO	9N	27W	36	3047112260000			5398	5320	4669	3741	2939	2085	625
MCFERRAN	XTO ENERGY INC	8N	28W	21	3047112270000			7292		6527	5380	4520	3462	1855
ROSS MYRTLE	STEPHENS PRDCTN CO	8N	28W	19	3047112310000			7107		6336	5278	4460	3438	1777
ALEXANDER	XTO ENERGY INC	9N	28W	18	3047112350000			4986	4908	4349	3537	2771	1999	897
CRAWFORD L B	XTO ENERGY INC	9N	28W	30	3047112370000			4059	3986	3447	2727	2140	1945	928
EVANS H L	XTO ENERGY INC	9N	28W	19	3047112390000			3981	3903	3744	3364	2643	1918	836
KIRKPATRICK	XTO ENERGY INC	9N	26W	28	3047112460000			5875	5802	5215	4242	3317	2740	
BROWN	SEECO INCORPORATED	11N	26W	31	3047112600000	3834	3621	3043	2886	2518	1904	1230	656	
TANKERSLEY	XTO ENERGY INC	9N	29W	26	3047112620000			4092	4007	3801	3463	2754	2015	918
MCGEE	NEG OPERATING LLC	8N	28W	15	3047112640000			6133		5380	4358	3576	2835	1473

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GOSNELL	SEECO INCORPORATED	9N	29W	12	3047112670000			4469	4318	3772	3077	2644	2254	1056
PRIMM CLYDE	STEPHENS PRDCTN CO	9N	27W	34	3047112860000	6816	6681	5298	5197	4605	3732	2977	2171	
MC DONALD	XTO ENERGY INC	9N	29W	35	3047112890000			4390	4323	3743	3020	2374	1639	
BURCHAM HEIRS	XTO ENERGY INC	9N	27W	21	3047112950000			4864	4801	4217	3341	2641	1787	874
KIRKPATRICK	BOWMAN&CAINS EXPL LL	9N	26W	29	3047113030000			5293	5233	4990	4049	3198	2268	
STROPE BENTON	SEECO INCORPORATED	9N	26W	20	3047113070000			5666	5566	4920	3968	3079	2166	
DEAN DEWEY	STEPHENS PRDCTN CO	9N	28W	7	3047113350000			4457	4353	3879	3137	2505	1759	716
MORRIS LAIN	XTO ENERGY INC	9N	29W	24	3047113460000	5034	4990	4531	4471	3927	3231	2569	1837	818
KING ALLEN W	STEPHENS PRDCTN CO	8N	28W	29	3047113580000			7334		6587	5505	4794	3731	1957
ALEXANDER	XTO ENERGY INC	9N	29W	13	3047113870000			4531	4434	3888	3134	2436	1673	625
TALLEY UNIT	HUMBLE OIL & REFG CO	9N	26W	28	3047300020000			5749	5639	5176	4225	3334	2374	
J W TATE	STEPHENS PRDCTN CO	8N	29W	23	3047300030000			6426	6394	5690	4893	4099	3154	1581
L F BURCHAM HEIRS	ARK LA GAS CO ET AL	9N	27W	21	3047300120000			5022	4892	4307	3430	2671	1827	886
REYNOLDS	ARKANSAS WESTERN GAS	8N	28W	35	3047300130000			7885	7849	7281	6109	5303	4174	2260
OCHSNER	ARKANSAS WESTERN GAS	9N	26W	24	3047300140000			4874	4768	4149	3241	2566	2247	1148
MO PACIFIC R R CO	ARK LA GAS CO ET AL	9N	27W	8	3047300230000	5705	5646	4281	4198	3686	2866	2191	1448	439
J L MILAM	STEPHENS PRDCTN CO	9N	27W	28	3047300250000			5116	4999	4414	3670	2878	2028	863
J W HUNTER	ARK LA GAS CO ET AL	9N	27W	19	3047300290000	5632	5393	4096	4023	3542	2935	2277	1614	483
S L THOMPSON	SKELLY OIL COMPANY	8N	28W	33	3047300340000			7380	7339	6732	5823	5032	3943	2088
PAUL WHITTINGTON	TRAHAN J C	8N	28W	12	3047300360000			5661		4926	3964	3226	2324	947
G E GOSNELL ETAL	ARKANSAS WESTERN GAS	9N	29W	12	3047300370000			4444	4368	3995	3339	2641	2005	1077
SAM ROBINSON	ARK LA GAS CO ET AL	9N	28W	24	3047300480000	5291	5214	4340	4261	3686	3106	2358	1672	609
HUNT-HEMBREE	ARKLA GAS COMPANY	8N	26W	11	3047600010000			6248	6147	5467	4493	4152	3130	1610
KIRKPATRICK	HUMBLE OIL & REFG CO	9N	26W	29	3047600250000			5865	5774	5110	4140	3243	2306	740
WILSON	GOSE PETROLEUM	9N	26W	35	3047600260000			6324	6215	5571	4618	3714	2657	1346
SMITH	ARKLA EXPL CO	9N	27W	20	3047600290000	5741	5671	4728	4617	4033	3200	2451	1657	520
C MILLER	GULF OIL CORP	9N	23W	14	3071000180000			6358	6223	5976	5042	3918	2914	1606
SUNDERMAN	MURPHY CORPORATION	10N	25W	35	3071000540000			4150	4053	3878	3099	2281	1365	
EXCELSIOR	GULF OIL CORP	9N	23W	30	3071000560000			5978	5856	5191	4286	3240	2529	1247
SOUTH LOW GAP	PHILLIPS PETRLM CO	11N	23W	31	3071000650000			3466	3329	2868	2295	1517	912	
BAKER	AMBASSADOR OIL CORP	10N	25W	14	3071000680000			3571	3403	3010	2269	1508	891	
B D RYE	GULF OIL CORP	9N	22W	15	3071100060000			5428	5314	4927	4228	3291	2237	994
OZARK REAL ESTATE	DIAMOND SHMROCK CORP	9N	24W	17	3071100090000			5462	5324	4750	3990	3093	2191	1034
WILEY W BEAN	TENNECO OIL CO	10N	24W	12	3071100120000		4447	3179	3043	2623	2392	2090	1515	510
AVO GEISLER	ARKANSAS WESTERN GAS	10N	25W	23	3071100130000			3695	3519	3072	2331	1836	1173	233
TAYLOR JAMES M	STEPHENS PRDCTN CO	10N	23W	24	3071100210000			4072	3943	3373	2679	1772	1008	14
OZARK REAL EST	LEBEN DRLG CO INC	9N	24W	21	3071100220000			6057	5912	5317	4384	3351	2605	1297
ASHLOCK	DIAMOND SHMROCK CORP	10N	24W	1	3071100290000			5280	5143	4644	3906	2892	2110	1072
ROSE ALLAM	DIAMOND SHMROCK CORP	9N	23W	14	3071100380000			6761	6646	5948	5015	3924	2902	1602
J M MOONEY	HANNA OIL & GAS CO	10N	22W	27	3071100420000			3854	3718	3141	2493	1542	770	
HORACE TOLBERT	DIAMOND SHMROCK CORP	10N	23W	26	3071100430000	5714	5495	4699	4590	4071	3797	2767	1933	840
GEORGE MORGAN JR	STEPHENS PRDCTN CO	10N	23W	36	3071100520000			4689	4578	4175	3481	2470	1642	529
WHEELESS	FERGUSON OIL & GAS I	10N	24W	35	3071100670000			5346	5208	4708	3850	2838	2016	
DICKERSON UNIT	TENNECO OIL CO	9N	25W	22	3071100910000			5161	5051	4464	3616	2884	1857	634
CASTLEBERRY UNIT	ARKANSAS WESTERN GAS	10N	25W	32	3071100940000			4124	3974	3474	2697	2028	1154	
F CHRISMAN	ARKANSAS WESTERN GAS	9N	25W	10	3071100980000			5110	4981	4422	3583	2770	1884	821
BROCK	DIAMOND SHMROCK CORP	9N	22W	31	3071101010000			6729	6629	5915	5010	3932	2715	1588
FLOWERS	GULF OIL CORP	9N	23W	26	3071101040000			6514	6394	6171	5336	4165	3304	2057

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C WOFFORD	ARKANSAS WESTERN GAS	10N	25W	29	3071101080000			4155	3990	3530	2758	1921	1170	
W B BUCHANAN	ARKANSAS WESTERN GAS	11N	24W	6	3071101100000		2562	1499	1349	1035	480	12	8	3
F H GROBE	ARKANSAS WESTERN GAS	9N	25W	10	3071101280000			5150	4989	4459	3607	2762	1900	849
ALDERSON	ARKANSAS WESTERN GAS	10N	22W	24	3071101310000			4398	4235	3875	3276	2275	1489	
J VARDAMAN	ARKANSAS WESTERN GAS	9N	25W	30	3071101350000			5650	5582	4991	4082	3192	2212	1001
MYRA K JOHNSON	TENNECO OIL CO	9N	25W	27	3071101370000			5915	5794	5185	4582	3774	2622	1299
SILEX GAS UNIT	ARKLA GAS COMPANY	10N	21W	21	3071101420000			3495	3373	2816	2211	1327	583	
KING ESTATE	OIL DEV OF UTAH	10N	24W	9	3071101430000		4769	3475	3296	2949	2572	2058	1456	550
GREENWOOD	SOUTHERN UNION PROD	10N	25W	31	3071101900000			4072	3904	3411	2627	1998	1761	698
DAVIS	TENNECO OIL CO	9N	25W	32	3071101930000			6157	6027	5406	4424	3495	2438	1151
VOLA	GULF OIL CORP	9N	23W	15	3071101950000			6156	6051	5387	4518	3649	2908	1566
SX MILLER DAWSON	SOUTHERN UNION EXPL	10N	25W	29	3071102070000			4131	3975	3514	2754	1921	1176	
GEORGE VANSICKLE	OXLEY PETROLEUM CO	10N	25W	35	3071102250000			3690	3572	3088	2444	2252	1370	
GREEN	STEPHENS PRDCTN CO	10N	25W	19	3071102300000			4492	4332	3897	3158	2292	1774	807
MIRACLE	TENNECO OIL CO	9N	25W	32	3071102320000			6074	5942	5340	4363	3447	2414	1221
BEAN WILEY	TENNECO OIL CO	10N	24W	12	3071102330000		4495	3185	3036	2601	2325	1987	1482	502
OZARK REAL ESTATE	LEBEN OIL CORP	9N	24W	21	3071102340000			6028	5881	5277	4357	3332	2404	1239
HUNT	HAWKINS O&G INC	9N	24W	32	3071102470000			7300	7166	6494	5453	4535	3330	1896
THOMPSON PLANTATION	MUELLER THOMAS C	9N	25W	34	3071102480000			6081	5959	5607	4758	3817	2760	1375
EXCELSIOR COAL	GULF OIL CORP	9N	23W	17	3071102500000			5939	5816	5172	4429	3357	2428	1213
PLUGGE	SEECO INCORPORATED	10N	23W	33	3071102590000			6123	6024	5465	4648	3825	2687	
HERMAN PARKER	STEPHENS PRDCTN CO	10N	25W	19	3071102670000			4686	4523	4047	3330	2400	1754	812
CASEY	TXO PROD CORP	10N	21W	33	3071102730000			4900	4776	4185	3471	2474	1600	662
WALKER	WHITMAR EXPL COMPANY	9N	25W	35	3071102740000			6540	6437	5778	4820	4009	2846	1456
POMRENKE	TXO PROD CORP	10N	22W	32	3071102780000			3807	3685	3111	2413	1510	701	
FERGUSON /C/	TXO PROD CORP	8N	25W	6	3071102840000			6216		5453	4479	3592	2603	1220
CHRISMAN	TXO PROD CORP	10N	25W	35	3071102850000			4065	3949	3449	2982	2246	1436	735
J H JACKSON	MUELLER THOMAS C	9N	25W	5	3071102870000			3811	3778	3483	2666	1956	1240	
HARGRAVE	HAWKINS O&G INC	9N	22W	8	3071102910000			5766	5654	5015	4153	3059	2105	876
STUMBAUGH	TXO PROD CORP	10N	21W	32	3071102950000			4781	4677	4071	3374	2405	1551	
BERNICE HUNT	OXLEY PETROLEUM CO	10N	25W	10	3071102990000		6095	4887	4717	4319	3549	2695	1930	974
ALLAM	TXO PROD CORP	9N	23W	14	3071103000000			6845	6745	6036	5098	3983	2926	1626
PATTERSON	HADSON PET USA INC	9N	22W	19	3071103040000			7053	6945	6239	5313	4175	3074	1731
HAIRSTON	MUELLER THOMAS C	10N	25W	34	3071103090000			3517	3352	2891	2648	2152	1391	
GRAVES	SANTA FE ENERGY CORP	11N	24W	32	3071103100000		5699	4743	4624	4241	3612	2719	1940	968
ALDERSON	TENNECO OIL CO	10N	21W	31	3071103120000			4573	4471	3896	3223	2224	1399	
RICHARD KIMBROUGH	OXLEY PETROLEUM CO	10N	25W	11	3071103130000	4926	4765	3969		3655	3048	2343	1599	689
SILEX	ARK LA GAS CO ET AL	10N	21W	21	3071103210000			2847	2742	2511	2096	1232	541	
GARRETT	WEISER-BROWN OPER CO	10N	24W	7	3071103240000			4082	3945	3477	2746	1901	1144	
JOHNSON	HAWKINS O&G INC	10N	22W	28	3071103250000			3835	3689	3116	2439	1473	728	
PANNELL	OXLEY PETROLEUM CO	10N	24W	31	3071103260000			5234	5072	4537	3658	2717	1891	
POMRENKE	SOUTHWESTERN ENRG PR	10N	22W	25	3071103310000		5242	4191	4073	3499	2849	1879	1103	
KIRSHBERGER	TENNECO OIL CO	10N	22W	36	3071103330000			4485	4342	3940	3334	2310	1445	
OVERBY-RAY	TXO PROD CORP	9N	22W	15	3071103340000			5854	5710	5408	4538	3430	2376	1098
KIRSCHBERGER	MUELLER THOMAS C	10N	22W	36	3071103390000			4788	4642	4048	3331	2310	1496	
CALDWELL	MUELLER THOMAS C	10N	25W	26	3071103430000			4258	4112	3659	2836	2010	1202	
WHEELESS KEN	CELERON O&G CO	10N	25W	18	3071103460000			4163	4044	3692	3052	2409	1650	
STORMS	MORAN EXPL INC	11N	23W	32	3071103510000			3633	3496	3097	2481	1663	1040	

Well Name	Operator	Township	Range	Section	UWI (APINum)	CHATT	BOONE	ORR	PATTERSON	SELLS	BYNUM	SELF	L_CARP	U_CARP
STUMBAUGH	REVERE CORP	10N	21W	29	3071103590000			4016	3899	3304	2669	1749	949	
PEABODY COAL CO	TXO PROD CORP	10N	25W	12	3071103600000			4051	3977	3637	2981	2233	1618	715
ZIGLER	OXLEY PETROLEUM CO	9N	22W	32	3071103660000			6804	6712	5927	4938	3845	3113	1657
CHURCH BRUCE	SUN EXPL & PROD CO	10N	25W	36	3071103680000			4962	4865	4431	3585	2650	1884	832
HIGHFILL	MUELLER THOMAS C	10N	25W	28	3071103710000			4403	4231	3729	2893	2033	1241	
GARRETT JOE	OXLEY PETROLEUM CO	11N	24W	31	3071103780000	4614	4471	4013	3880	3486	2602	1939	1229	
PATTERSON RONALD	OXLEY PETROLEUM CO	10N	25W	1	3071103800000			4871	4732	4286	3529	2664	1884	949
PELLHAM	MUELLER THOMAS C	10N	22W	35	3071103810000			3992	3794	3295	2639	1723	1002	
REECE	TXO PROD CORP	12N	23W	36	3071103860000		2686	1652	1528	1295	744	357	14	6
NAHLEN	CNG PRODUCING CO	9N	22W	28	3071103880000			4961	4891	4396	3580	2711	1884	
BURKES RICHARD	OXLEY PETROLEUM CO	10N	24W	6	3071103920000	5582	5493	4232	4086	3745	3062	2215	1475	
MAHEW	WILLIFORD ENERGY CO	11N	25W	36	3071103940000			4578	4445	4052	3318	2486	1722	766
KIRSHBERGER	MUELLER THOMAS C	10N	22W	26	3071104000000			4060	3927	3308	2649	1766	981	
VAN SICKLE GEORGE	OXLEY PETROLEUM CO	10N	25W	35	3071104020000			3826	3650	3352	2565	1916	1109	
HILL TICK	WEISER BROWN OIL CO	9N	24W	28	3071104030000			6662	6512	5886	4925	3879	2839	1089
PYRON D	MUELLER THOMAS C	10N	25W	16	3071104050000			4347	4220	3865	3247	2312	1852	892
LILLIE	ALEXANDER ENERGY	10N	21W	30	3071104080000			4470	4331	3782	3065	2060	1496	
HURLEY STERLIN	MUELLER THOMAS C	9N	23W	18	3071104220000			5982	5852	5195	4319	3286	2369	1152
WITHROW	MUELLER THOMAS C	10N	25W	21	3071104230000			4137	4008	3909	3121	2307	1670	749
BAZYK	MUELLER THOMAS C	10N	25W	22	3071104240000			4356	4197	3727	2949	2013	1384	606
CASEY	WEISER BROWN OIL CO	9N	22W	20	3071104300000			7345	7239	6453	5455	4267	3108	1699
ALDERSON `A`	ALEXANDER ENERGY	10N	21W	31	3071104490000			4497	4385	4048	3326	2310	1576	
BAZYK	MUELLER THOMAS C	10N	25W	15	3071104560000			4106	3946	3483	3001	2226	1638	744
WILKINS	TERRA RESOURCES INC	10N	22W	35	3071104590000			3896	3772	3208	2571	1611	825	
SILEX	ARKLA INCORPORATED	10N	21W	21	3071104600000			2795	2681	2160	1955	1275	552	
CONAWAY	OXLEY PETROLEUM CO	9N	22W	15	3071104740000			5631	5487	4764	3928	2887	2118	845
DEMOSS	MUELLER THOMAS C	10N	25W	15	3071104760000			4251	4082	3771	3144	2297	1625	828
BARTLETT	SEECO INCORPORATED	10N	25W	34	3071104830000			3621	3541	3089	2471	2102	1504	
OGDEN	MUELLER THOMAS C	10N	24W	10	3071104840000			4081	3951	3849	3330	2480	1807	835
FREEMAN	MUELLER THOMAS C	10N	21W	20	3071104890000		4212	3343	3305	2886	2497	1542	795	
LEEDS	WHITMAR EXPL COMPANY	9N	22W	20	3071104910000			6980	6860	6146	5248	4115	3177	1671
TIPPER	IP PETROLEUM CO INC	10N	25W	20	3071104960000			4651	4493	4045	3310	2399	1735	789
CASTLEBERRY	TERRA RESOURCES INC	10N	25W	16	3071104980000			4738	4568	4141	3369	2427	1767	902
KNOTT HOLE	IP PETROLEUM CO INC	10N	25W	29	3071105060000			4351	4235	3780	3003	2152	1397	
HERUSKA JAMES N	HUGHES EASTERN CORP	9N	22W	6	3071105080000	5538	5312	5127	5122	4898	4086	3031	2124	
PYRON	MUELLER THOMAS C	10N	25W	16	3071105100000			4090	3935	3535	3158	2380	1773	818
HIGGS `A`	TEXACO INCORPORATED	8N	22W	5	3071105110000			6689	6592	5820	4839	3850	2854	1348
CONVERSE	MUELLER THOMAS C	10N	25W	31	3071105270000			4052	3897	3369	2578	2098	1793	732
CURRAN	MUELLER THOMAS C	10N	24W	34	3071105290000			5346	5184	4627	3821	2841	2002	
BEWLEY	WHITMAR OPERATING CO	10N	21W	20	3071105300000			3716	3593	3036	2423	1534	757	
SOSEBEE	SEECO INCORPORATED	10N	25W	31	3071105380000			3849	3703	3321	3149	2276	1501	538
MONTGOMERY	TXO PROD CORP	10N	24W	36	3071105470000			5879	5720	5124	4285	3174	2304	1322
THERE GOES THE NEIG	WEISER-BROWN OPER CO	10N	24W	10	3071105560000			5481	5325	4880	3966	2863	2146	1116
RIKER	SONAT EXPL INC	9N	23W	7	3071105570000			5824	5705	5112	4328	3604	2681	1436
THOMPSON MOUNTAIN	WEISER-BROWN OPER CO	10N	22W	27	3071105940000			4037	3900	3314	2705	1732	943	
WHEELESS	MUELLER THOMAS C	10N	25W	19	3071105960000			4571	4408	3965	3231	2354	1774	847
NEW JERSEY ZINC	JMC EXPLORATION	9N	23W	8	3071106050000			6144	6029	5393	4464	3359	2496	1270
PETERSON FARMS	SEECO INCORPORATED	10N	25W	20	3071106060000			4443	4286	4111	3422	2461	1793	812

Well Name	Operator	Township	Range	Section	UWI (APINum)	CHATT	BOONE	ORR	PATTERSON	SELLS	BYNUM	SELF	L_CARP	U_CARP
KINMAN	SEECO INCORPORATED	10N	25W	34	3071106120000			4043	3905	3467	2691	2051	1611	677
CAMPBELL	KLABZUBA OPER CO-ROB	9N	22W	7	3071106160000			6324	6213	5538	4625	3489	2457	1204
BARNSLEY	HANNA OIL & GAS CO	12N	25W	25	3071106260000		1907	867	745	423	17	12	8	3
RUST	HOOVER-WILSON EXP&PR	10N	24W	7	3071106310000			3922	3754	3391	2633	1780	1056	
WITHROW	SEECO INCORPORATED	10N	25W	21	3071106350000			4553	4410	3929	3140	2201	1683	772
WELCH	SEECO INCORPORATED	9N	25W	15	3071106370000			4993	4871	4368	3518	2779	1970	866
HIGHFILL	SEECO INCORPORATED	10N	25W	33	3071106440000			3569	3432	3083	2437	1779	995	
CASTLEBERRY EST	SEECO INCORPORATED	10N	25W	32	3071106490000	5102	4989	3547	3415	2934	2711	2394	1562	
HAIRSTON	MUELLER THOMAS C	10N	25W	34	3071106540000			3605	3464	3008	2565	2299	1551	561
BARTLETT	MUELLER THOMAS C	10N	25W	34	3071106600000			3661	3534	3097	2685	2264	1469	581
BEAN	HOOVER-WILSON EXP&PR	10N	24W	12	3071106620000		4448	3155	3025	2618	2373	1963	1485	482
BRIDGER	WHITMAR EXPL COMPANY	10N	22W	28	3071106770000			3796	3636	3066	2394	1439	694	
BEAN	HOOVER-WILSON EXP&PR	10N	24W	12	3071106840000			3168	3045	2632	2347	1937	1481	482
DICKERSON	HOOVER-WILSON EXP&PR	9N	25W	22	3071106860000			5185	5146	4587	3709	2988	2108	933
ALLEN	SEECO INCORPORATED	10N	25W	33	3071106950000			3520	3368	2913	2681	2169	1431	
HAIRSTON	MUELLER THOMAS C	10N	25W	27	3071106990000			4490	4324	3804	2952	2098	1293	
STRACKBEIN	SEECO INCORPORATED	10N	25W	21	3071107020000			4628	4453	4021	3236	2304	1715	768
ROBERTSON	SEECO INCORPORATED	9N	25W	15	3071107080000			4855	4717	4286	3439	2868	2065	901
DAVIS	SHIELDS ENERGY INC	9N	23W	14	3071107420000			6315	6199	5541	5185	4022	2993	1646
WILKENS	PETROLEUM DEV CO	10N	22W	34	3071107720000			3942	3829	3208	2570	1628	829	
LAMARK	VASTAR RESOURCES INC	9N	22W	18	3071107920000			6989	6855	6195	5286	4121	3057	1708
LONG	MUELLER THOMAS C	10N	25W	30	3071107930000			4430	4358	3891	3131	2366	1715	760
HERBERT LUCY	BOWMAN&CAINS EXPL LL	10N	23W	27	3071108090000			3833	3716	3149	2891	2685	1891	749
CASTLEBERRY	FREEDOM ENERGY	9N	22W	7	3071108110000			6477	6356	5625	4749	3629	2660	1246
HEILMAN	MUELLER THOMAS C	9N	25W	5	3071108180000			4075	3961	3493	2843	2004	1258	
STUMBAUGH	CROSS TIMBERS OPR CO	10N	21W	32	3071108300000			4786	4664	4073	3374	2422	1736	
BARTLETT	BOWMAN&CAINS EXPL LL	9N	25W	3	3071108320000			4192	4035	3513	2692	1869	1236	
BARTLETT	HOGBACK EXPL INC	10N	25W	34	3071108450000			3484	3346	2940	2608	2158	1344	
SHERBURNE	WEISER-BROWN OPER CO	10N	25W	20	3071108520000			4422	4330	4159	3409	2448	1785	824
BARTLETT	FREEDOM ENERGY INC	10N	25W	34	3071108530000			3890	3770	3272	2586	2181	1621	
KENNETH	SHIELDS OPER INC	10N	22W	35	3071108540000			3913	3795	3207	2559	1637	843	
JOHNSON	SHIELDS OPER INC	10N	22W	33	3071108640000			3959	3816	3225	2539	1577	821	
AGEE R	SEECO INCORPORATED	10N	25W	30	3071108710000			4066	3908	3409	2639	1815	1125	
STUMBAUGH	XTO ENERGY INC	10N	21W	32	3071108730000			4402	4250	3807	3346	2396	1548	
STUMBAUGH	SEDNA ENERGY INC	10N	21W	32	3071108850000		5617	4337	4212	3715	3176	2310	1563	
PEABODY COAL	XTO ENERGY INC	10N	25W	12	3071108910000	5121	5078	4711	4567	4142	3344	2507	1705	782
PEABODY COAL	XTO ENERGY INC	10N	25W	12	3071108950000			4759	4626	4190	3370	2514	1715	793
ALDRIDGE	XTO ENERGY INC	9N	23W	9	3071109180000			5954	5828	5191	4389	3513	2591	1369
KOLB-A	SKELLY OIL COMPANY	9N	24W	1	3071300070000			6161	6011	5427	4568	3474	2587	1382
OZARK REAL ESTATE	ARK LA GAS CO ET AL	9N	24W	24	3071300100000			5973	5831	5209	4293	3251	2276	1046
PAUL SUNDERMAN ETAL	SHAMROCK O&G CORP	10N	25W	35	3071300130000			3716	3588	3264	2833	2234	1375	
DIXON-D	PHILLIPS PETRLM CO	10N	23W	34	3071300170000			5883	5748	5127	4318	3247	2336	1142
E B TANNER	SHAMROCK O&G CORP	9N	22W	22	3071300190000			6156	6052	5591	4691	3590	2510	1182
JOHNSON	MONCRIEF W A	10N	22W	29	3071300310000			3896	3753	3213	2532	1611	826	
MASON	PHILLIPS PETRLM CO	10N	23W	27	3071300330000			4917	4830	4295	3756	2818	1996	871
SILEX GAS UNIT	ARK LA GAS CO ET AL	10N	21W	21	3071300350000			3256	3199	2684	2088	1214	503	
TED MELTON UNIT	SUNRAY DX OIL CO	9N	23W	23	3071300370000			6941	6813	6103	5141	3976	2878	1510
ALDRIDGE	GULF OIL CORP	9N	23W	9	3071600110000			6069	5964	5300	4467	3443	2532	1308

Well Name	Operator	Township	Range	Section	UWI (APINum)	CHATT	BOONE	ORR	PATTERSON	SELLS	BYNUM	SELF	L_CARP	U_CARP
J R HARDREADER	SHAMROCK O&G CORP	9N	25W	35	3071600120000			6929	6819	6160	5156	4288	3089	1952
HURLEY	PHILLIPS PETRLM CO	10N	23W	27	3071600130000	5493	5295	4813	4786	4426	3668	2773	1968	875
SILEX GAS UNIT	ARKANSAS LA GAS CO	10N	21W	21	3071700050000			3495	3373	2812	2211	1327	590	
CASEY `D`	TXO PROD CORP	10N	21W	33	3071700110000			4897	4772	4172	3461	2482	1596	645
MORGAN GEO JR	STEPHENS PRDCTN CO	10N	23W	36	3071700150000			4684	4578	4175	3481	2470	1642	
JOHNSON	MONCRIEF W A	10N	22W	29	3071700190000			3909	3753	3213	2528	1585	818	
STUMBAUGH	REVERE CORP	10N	21W	29	3071710120000			4018	3903	3308	2669	1758	949	
PRICE	GOSE STEVE	9N	20W	15	3115000240000			3595	3540	3052	2356	1408	657	
JONES	SUNRAY DX OIL CO	10N	20W	31	3115000640000			3810	3687	3267	2738	1792	1257	
W E SHOPTAW	GULF OIL CORP	9N	20W	17	3115000670000			4247	4141	3428	2988	1957	971	
SILEX GAS UNIT	ARK LA GAS CO ET AL	10N	21W	27	3115100020000	4797	4536	3239	3156	2606	1992	1163	418	
R H BROWN	DIAMOND SHMROCK CORP	9N	20W	3	3115100060000	4838	4563	3794	3679	3047	2379	1483	570	
JOE CANADY	DIAMOND SHMROCK CORP	8N	19W	17	3115100080000			5320		4384	3237	2466	1370	
EUBANKS	FERGUSON OI-HANNA OG	9N	21W	11	3115100090000			4289	4254	3729	3040	2004	1071	
YOW	FERGUSON OIL	9N	21W	12	3115100140000	5312	5058	4285	4192	3578	2885	1921	1057	
EUBANKS	FERGUSON OIL	9N	21W	11	3115100210000			4565	4454	3772	3043	2022	1076	
SILEX GAS UNIT	ARK LA GAS CO ET AL	10N	21W	22	3115100270000			2811	2685	2144	1940	1249	575	
BEARD	CSG EXPLORATION CO	9N	20W	29	3115100320000		6668	5541	5446	4680	3849	2749	1968	
SAM JONES	RESERVE OIL INC	9N	20W	36	3115100420000			4793	4735	3937	3189	2249	1395	
BRIGHAM	FERGUSON OIL & GAS I	10N	20W	33	3115100440000			3767	3702	3094	2486	1577	732	
TONKOVITCH	RESERVE OIL INC	8N	20W	1	3115100460000			4850	4787	4096	3323	2247	1579	
CHURCHILL	HOOVER&BRACKEN INC	9N	20W	29	3115100470000			4932	4830	4074	3422	2231	1479	
PELHAM	TEXAS O&G CORP	9N	20W	21	3115100650000			4186	4092	3849	3063	2003	1009	
OBRIANT	TEXAS O&G CORP	8N	20W	1	3115100700000			4618		4136	3361	2252	1651	
HEIGDON	RESERVE OIL INC	9N	20W	26	3115100750000			5044	4935	4131	3318	2271	1293	
MARTIN UNIT	SAMSON RESOURCES CO	9N	21W	32	3115100820000			6449	6346	5593	4738	3665	2511	1161
B M HUGGINS	MUELLER THOMAS C	9N	20W	3	3115100950000			3771	3668	3012	2349	1450	552	
POYNTER	MUELLER THOMAS C	9N	20W	27	3115101570000			4832	4724	3977	3174	2110	1322	
PELLHAM	TXO PROD CORP	9N	20W	21	3115101750000			4179		3838	3074	2047	1119	
POWERS	DIAMOND SHMROCK CORP	9N	20W	8	3115101820000			3930	3819	3176	2559	1655	742	
UTLEY /E/	ENSTAR PETROLEUM INC	9N	20W	30	3115101900000		6584	5169	5099	4604	4188	3078	2268	
MCBRIDE /E/	TXO PROD CORP	9N	20W	18	3115102040000			4087	3990	3730	3091	2349	1568	
STURGIS	MUELLER THOMAS C	9N	20W	27	3115102080000			4844	4764	4011	3212	2143	1333	
CHURCHILL L J	C & K PETROLEUM INC	9N	21W	36	3115102100000			6293	6187	5395	4702	3559	2390	1086
MILSAP	TOWNER PETROLEUM CO	9N	21W	1	3115102150000			4303	4167	3539	2851	1887	974	
UTLEY `D`	TXO PROD CORP	9N	20W	31	3115102210000			5209	5129	4778	4194	3110	2293	
LUEKER	C & K PETROLEUM INC	9N	21W	26	3115102240000		7461	6242	6147	5432	4623	3564	2369	
SEXTON	TXO PROD CORP	9N	20W	20	3115102300000			4475	4399	3732	2981	1979	964	
KYLE `A`	TXO PROD CORP	9N	20W	26	3115102370000			4764	4718	4051	3288	2301	1329	
NORTON	ESSEX EXP INC	8N	19W	23	3115102470000			5155	5097	4264	3965	2641	1556	
GRACE JENSEN	MCRAY C E & ASSOC	8N	19W	7	3115102520000			5194		4286	3489	2325	1157	
CHURCHILL	MUELLER THOMAS C	9N	20W	20	3115102600000			4933	4831	4077	3289	2228	1184	
HUGGINS B M	MUELLER THOMAS C	9N	20W	2	3115102610000			3308	3201	3083	2629	1732	816	
MILSAP	TXO PROD CORP	9N	21W	1	3115102690000			4307	4174	3539	2853	1879	978	
CRAVENS `A`	TXO PROD CORP	9N	20W	26	3115102750000			4981	4872	4091	3313	2231	1296	
BYRUM	EXXEX EXPLORATION	8N	19W	22	3115102780000			6009		5095	4361	2916	1747	
PRICE	TXO PROD CORP	9N	21W	36	3115102790000		6749	6746	6644	5873	4917	3760	2704	1112
BEWLEY	ARKLA INCORPORATED	9N	20W	22	3115102860000			4607	4550	3937	3119	2096	1169	

Well Name	Operator	Township	Range	Section	UWI (APINum)	CHATT	BOONE	ORR	PATTERSON	SELLS	BYNUM	SELF	L_CARP	U_CARP
PARTAIN	TXO PROD CORP	9N	20W	4	3115102890000			4235	4124	3442	2743	1766	853	
REID	MUELLER THOMAS C	9N	20W	3	3115102960000			4085	3965	3315	2631	1711	784	
ROBBINS `A`	TXO PROD CORP	10N	21W	36	3115103090000	5356	5110	4243	4160	3290	2667	1749	894	
WALDO	OXLEY PETROLEUM CO	9N	21W	31	3115103600000			6119	6029	5298	4618	3497	2332	952
BROWN GEORGIA	TXO PROD CORP	9N	21W	12	3115103910000			4389	4273	3618	2915	1933	1006	
YOW `A`	TXO PROD CORP	9N	21W	12	3115104010000			4289	4245	3675	3033	2052	1127	
JONES SAM	ESCO EXPL INC	9N	20W	36	3115104080000			4775	4690	3925	3176	2202	1326	
JONES IDA	WEISER-BROWN OPER CO	9N	20W	18	3115104090000			4228	4130	3796	2873	1865	937	
JENSEN GRACE	MUELLER THOMAS C	8N	19W	7	3115104180000			5183		4269	3483	2325	1162	
SEXTON	TXO PROD CORP	9N	20W	17	3115104300000			3750	3637	3390	2647	2047	1017	
SMITH	TENNECO OIL CO	9N	20W	28	3115104390000			5118	5027	4286	3457	2340	1464	
YOW `A`	TXO PROD CORP	9N	21W	12	3115104430000			4198	4110	3734	3474	2500	1512	
BEWLEY	TXO PROD CORP	9N	21W	13	3115104670000			4414	4304	3629	2913	1993	1025	
ARTHUR UNIT	TEXACO INCORPORATED	10N	20W	33	3115104680000	4780	4526	3873	3801	3067	2416	1697	796	
BEWLEY DAVID	ARKLA EXPL CO	9N	20W	22	3115104700000			4222	4131	3897	3119	2058	1123	
LUNNINGHAM J F	TEXACO INCORPORATED	8N	19W	25	3115104750000			5976		5101	4305	2838	1753	
SINGLETON	MUELLER THOMAS C	9N	20W	34	3115104780000			5181	5084	4319	3489	2410	1548	
POWERS NEWTON	WEISER-BROWN OPER CO	9N	20W	16	3115104790000			3720	3629	3320	2580	1592	877	
HOUSE OF PRAYER CHU	WEISER-BROWN OPER CO	9N	20W	18	3115104950000			4198	4095	3413	2800	1839	926	
HULL	KAISER-FRANCIS OIL	8N	19W	6	3115105120000			4918	4838	4029	3381	2542	1485	
LYNCH `C`	TXO PROD CORP	9N	20W	28	3115105140000			4964	4863	4116	3297	2219	1409	
O`BRIANT	TXO PROD CORP	8N	20W	1	3115105210000			4952	4872	4067	3596	2465	1446	
STURGIS	MUELLER THOMAS C	9N	20W	27	3115105460000			4872	4770	4022	3226	2158	1318	
GRANT	SONAT EXPL INC	9N	20W	35	3115105470000			5066	4964	4165	3381	2351	1468	
SILEX	SAMSON RESOURCES CO	10N	21W	23	3115105600000			3174	3029	2538	2039	1292	560	
POTTER	MUELLER THOMAS C	8N	19W	7	3115105790000			4975		4608	3808	2598	1446	
BAYOU	HANNA OIL & GAS CO	9N	20W	20	3115105850000			4913	4811	4052	3252	2187	1132	
GRACE	FORT OPERATING CO	9N	21W	12	3115106550000			4350	4296	3664	2965	2076	1150	
DALE	SEDNA ENERGY INC	9N	20W	18	3115106560000			4247	4149	3481	2801	1889	911	
FLOYD TURNER UNIT	SUNRAY DX OIL CO	9N	20W	8	3115300050000			4037	3923	3288	2684	1777	872	